Version 1.2, Dec 2002

OLIN CORPORATION
LEVEL I DATA QUALITY EVALUATION
STANDARD OPERATING PROCEDURE AND CHECKLIST
VOLATILE PETROLEUM HYDROCARBONS BY METHOD MADEP

Reviewer/Date 2/12/10 [signature]
Sr. Review/Date [signature] 6/3/10
Lab Report # All SDGs
Project # 61 07100016 - [illegible] 12

1.0 Laboratory Deliverable Requirements

1.1 Laboratory Information: Was all of the following provided in the laboratory report? **Yes** [X] No [ ] N/A [ ] Comments:
Check items received.

☐ *Name of Laboratory* ☐ *Certification ID #* ☐ *Address* ☐ *Project ID* ☐ *Phone #* ☐ *Sample identification – Field and Laboratory*

Client Information: ☐ *Name* ☐ *Address* ☐ *Client Contact* *(IDs must be cross-referenced)*

ACTION: If no, contact lab for submission of missing or illegible information.

1.2 Laboratory Report Certification Statement ***Yes*** *[X] No [ ] N/A [ ] Comments:*

Does the laboratory report include a completed Analytical Report Certification in the required format?

ACTION*: If no, contact lab for submission of missing certification or certification with correct format.*

1.3 Laboratory Case Narrative: ***Yes*** *[X] No [ ] N/A [ ] Comments:*

☐ *Narrative serves as an exception report for the project and method QA/QC performance.* ☐ *Narrative includes an explanation of each discrepancy on the Certification Statement.*

ACTION*: If no, contact lab for submission of missing or illegible information.*

1.4 Chain of Custody (COC) **Yes** [X] No [ ] N/A [ ] Comments:

Does the laboratory report include a copy of the completed Chain of Custody forms containing all samples in this SDG?

NOTE: Olin receives and maintains the *original* COC.

ACTION: If no, contact lab for submission of completed COC.

1.5 Sample Receipt Information (*Cooler Receipt Form*): Were each of the following tasks completed and recorded upon receipt of the sample(s) into the laboratory? **Yes** [X] No [ ] N/A [ ] Comments:

☐ Sample temperature confirmed: must be 1° – 10° C. (If samples were sent by courier and delivered on the same day as collection, temperature requirement does not apply).

☐ Container type noted ☐ Condition observed ☐ Field and lab IDs cross referenced

ACTION: If no, contact lab for submission of missing or incomplete documentation.

1.5.1 Were the correct bottles and preservatives used? **Yes** [X] No [ ] N/A [ ] Comments:

Water - 40 mL VOA vial/HCL to pH<2, cool to 4°C
Soil - 5 gram Encore™/cool to 4°C or 40 mL VOA vial with field preservation of sodium bisulfate (low-level) or methanol (high-level) or field preservation in water if soils are reactive to sodium bisulfate (i.e. alkaline conditions, excessive humic acid content, etc.)

ACTION: If no, inform senior chemist. Document justification for change in container/volume (if applicable); qualify both positive data and non-detect data (J) if cooler temperature exceeds 10°C. Rejection of data requires professional judgment

ACTION: If each VOA vial for a sample contains air bubbles or the VOA vial analyzed contained air bubbles, flag positives (J) and reject nondetects (R).

1.5.2 Were all samples delivered to the laboratory without breakage? **Yes** [X] No [ ] N/A [ ] Comments:

1.5.3 Does the *Cooler Receipt Form* or Lab Narrative indicate other problems with sample receipt, condition of the samples, analytical problems or special circumstances affecting the quality of the data? Yes [ ] **No** [X] N/A [ ] Comments:

1.6 Sample Results Section: *Was the following information supplied in the laboratory report for each sample?* **Yes** [X] No [ ] N/A [ ] Comments:

☐ Field ID and Lab ID ☐ *Date and time collected* ☐ Analyst Initials ☐ *Dilution Factor* ☐ % moisture or solids ☐ *Reporting limits*

☐ Analysis method ☐ *Preparation method* ☐ *Date of preparation/extraction/digestion clean-up and analysis, where applicable* ☐ Matrix ☐ Target analytes and concentrations ☐ Units (soils must be reported in dry weight)

ACTION: If no, contact lab for submission of missing or incomplete information.

1.7 QA/QC Information: Was the following information provided in the laboratory report for each sample batch? **Yes** [X] No [ ] N/A [ ] Comments:

☐ Method blank results ☐ LCS recoveries ☐ MS/MSD recoveries and RPDs ☐ Surrogate recoveries

ACTION: If no, contact lab for submission of missing or incomplete information.

2.0 Holding Times

Have any technical holding times, determined from date of collection to date of analysis, been exceeded? Yes [ ] **No** [X] N/A [ ] Comments:

For water samples, the holding time is 7 days from sampling for unpreserved samples and 14 days for preserved samples.

For soil samples, methanol preservation required with a holding time of 14 days. If an Encore™ sampler was used, the lab must ***preserve*** the sample within 48 hours. Analytical holding time from time of preservation is 14 days.

NOTE: List samples that exceed hold time with # of days exceeded on checklist

ACTION: If technical holding times are exceeded, qualify all positive results (J). Use professional judgment to reject (R) data for grossly exceeded.

3.0 Laboratory Method

3.1 Was the correct laboratory method used? **Yes** [X] No [ ] N/A [ ] Comments:

Purge and Trap Water: 5030B Soil: 5035
Volatile Petroleum Hydrocarbons MADEP VPH 98-1

ACTION: If no, contact lab to provide justification for method change compared to the requested method. Contact senior chemist to inform Client of change or to request variance.

3.2 Are the practical quantitation limits the same as those specified by the ☐ SOW ☐ QAPP ☐ Lab ☐ MADEP — **Yes** [X] No [ ] N/A [ ] Comments:

NOTE: *The MADEP QA/QC Guidelines provides PQLs for volatile petroleum hydrocarbons. See MADEP PQLs vs. the PQLs listed in the QAPP.*

ACTION: If no, evaluate change with respect to sample matrix, preparation, dilution, moisture, etc. If sample PQL is indeterminate, contact lab for explanation.

3.3 Are the appropriate parameter results present for each sample in the SDG? **Yes** [X] No [ ] N/A [ ] Comments:

NOTE: *The MADEP QA/QC Guidelines requires a minimum compound reporting list for volatile organic compounds.*

3.4 If *dilutions were required, were dilution factors reported?* **Yes** [X] No [ ] N/A [ ] Comments:

NOTE: *MADEP guidance states that if a diluted and an undiluted analysis is performed, the laboratory should report results for the lowest dilution within the valid calibration range for each analyte.*

ACTION: If no, contact the lab for submission.

4.0 Method Blanks

4.1 Are the Method Blank Summaries present? **Yes** [X] No [ ] N/A [ ] Comments:

ACTION: If no, call the laboratory for submission of missing data.

4.2 Was a method blank analyzed for each analytical batch of 20 samples or less? **Yes** [X] No [ ] N/A [ ] Comments:

ACTION: If no, document discrepancy in case narrative and contact lab for justification. Consult senior chemist for action needed.

4.3 Is the method blank less than the PQL? (See attached table for PQLs). **Yes** [X] No [ ] N/A [ ] Comments:

4.4 Do any method blanks have positive results for VPH parameters? Qualify data according to the following: Yes [ ] **No** [X] N/A [ ] Comments:

For VPH contaminants:

Review blank and sample chromatograms to evaluate the nature of the detection in the blank and associated samples. Use professional judgment. The following actions may be applied:

If the sample concentration is < 5 × blank value, flag sample result non-detect "U" at the PQL or the concentration reported if greater than the PQL.

If the sample concentration is > 5 × blank value, no qualification is needed..

ACTION: If any blank has positive results, list all the concentrations detected and flagging level (flagging level = 10x or 5 × blank value) on the checklist. List all affected samples and their qualifiers.

5.0 Laboratory Control Standard

5.1 Was a laboratory control standard (LCS) run with each analytical batch of 20 samples or less? **Yes** [X] No [ ] N/A [ ] Comments:

ACTION: Call laboratory for LCS form submittal. If data are not available, reject (R) data associated with that batch.

5.2 Is a LCS Summary Form present? **Yes** [X] No [ ] N/A [ ] Comments:

ACTION: If no, contact lab for resubmission of missing data.

5.3 Is the recovery of any analyte outside of control limits of 70-130% in the QAPP? Yes [ ] **No** [X] N/A [ ] Comments:

NOTE: *A full target, second source LCS is required by MADEP.*

NOTE: *MADEP guidelines list LCS recovery limits as 70-130 except for naphthalene. The laboratory must identify any other analytes that routinely exceed 70-130 percent.*

ACTION: If recovery is above the upper limit, qualify all positive sample results within the batch as (J). If recovery is below the lower limit but > 10%, qualify all positive and no-detect results within the batch as (J). If LCS recovery is <10%, positive and non-detect results are rejected (R) unless the QC limit for that compound is below 10% (flag as above).

5.4 Are 80% of LCS recoveries within laboratory control limits? **Yes** [X] No [ ] N/A [ ] Comments:

ACTION: If 80% of LCS recoveries are not within limits, use professional judgment and consult Senior Chemist. If more than half of the recoveries are above control limits, qualify all positive results as (J). If more than half of the recoveries are below control limits, batch may require rejection and reanalysis

6.0 Matrix Spikes

6.1 Were project-specific MS/MSDs collected? List project samples that were spiked. **Yes** [X] No [ ] N/A [ ] Comments:

ACTION: If no, contact senior chemist to see if any were specified.

6.2 Is the MS/MSD Recovery Form present? **Yes** [X] No [ ] N/A [ ] Comments:

ACTION: If no, contact lab for resubmission of missing data.

6.3 Were matrix spikes analyzed at the required frequency of 1 per 20 samples per matrix? **Yes** [X] No [ ] N/A [ ] Comments:

ACTION: If any matrix spike data are missing, call lab for resubmission.

6.4 Are any VPH spike recoveries outside of the QC limits of 70-130%? Yes [X] **No** [ ] N/A [ ] Comments:

NOTE: $\%R = \frac{(SSR-SR)}{SA} \times 100\%$ Where: SSR = Spiked sample result, SR = Sample result, SA = Spike added

SAMPLE CONC. >4X SPIKE CONC — NO QUALS SEE 360-24563

NOTE: *A full target, second source MS/MSD is required by MADEP.*

NOTE: *MADEP guidelines list MS/MSD recovery limits as 70-130 except for naphthalene.*

NOTES: 1) If only one of the recoveries for an MS/MSD pair is outside of the control limits, no qualification is necessary. Use professional judgment for the MS/MSD flags.
2) If the MS/MSD was performed by the laboratory on a non-project sample, no qualification is required.

ACTION: MS/MSD flags only apply to the sample spiked. If the recoveries of the MS and MSD exceed the upper control limit, qualify positive results as estimated (J). If the recoveries of the MS and MSD are lower than the lower control limit but > 30%, qualify both positive results and non-detects (J). If the MS/MSD recovery is < 30% and the sample is non-detect, the results are considered unusable and flagged (R).

ACTION: Laboratory control limits apply when spiked sample results fall within the normal calibration range. If dilutions are required due to high sample concentrations, the data is evaluated, but no flags are applied.

6.5 Are any RPDs for MS/MSD recoveries outside of the QC limits of 50 (water and soil)? Yes [ ] **No** [X] N/A [ ] Comments:

NOTE: $RPD = \frac{S-D}{(S+D)/2} \times 100\%$ Where: S = MS sample result, D = MSD sample result

NOTE: *MADEP guidelines list MS/MSD RPD limits for both water and soils as ≤ 50.*

ACTION: If the RPD exceeds the control limit, qualify positive results and non-detects (J).

ACTION: Laboratory control limits apply when spiked sample results fall within the normal calibration range. If dilutions are required due to high sample concentrations, the data are evaluated, but no flags are applied.

7.0 Surrogate Recoveries

Were VPH surrogate recoveries outside of the QAPP limits of 70-130% for any sample or method blank? If yes, were samples re-analyzed?

Yes [X] **No** [ ] N/A [ ] Comments:

YES SAMPLE OUT
RE-ANALYSIS W/ SIMILAR RESULTS

NOTE: %R = QD x 100% Where: S = MS sample result
D = MSD sample result

NOTE: *MADEP guidelines list surrogate limits for both water and soils as 70-130% for both detectors.*

ACTION: If recoveries are >10%, but fail to meet QC criteria: (1) For recoveries below the QC limit, qualify non-detects and positives (J), and (2) For recoveries above the QC limit, qualify only positives (J). If any surrogate recovery is <10% (unless the QC limits are below 10%, in which case, results are flagged as stated above), flag positives (J) and reject nondetects (R).

NOTE: If surrogate recoveries fail due to dilution, results are not flagged. Document on checklist and in the case narrative.

8.0 Sampling Accuracy

8.1 Were trip blanks shipped with VOC samples and analyzed?

Yes [X] No [ ] N/A [ ] Comments:

NOTE: *MADEP requires trip blanks per the following frequency:*

	Soil/Sediment	*Aqueous*	*Drinking Water*
Option 1	*Not Required*	*Not Required*	*1 per cooler VOAs/VPH*
Option 3	*1 per 10 samples*	*1 per 10 samples*	*1 per 10 samples*

8.2 Do any trip blanks have positive results?

Yes [ ] **No** [X] N/A [ ] Comments:

ACTION: Prepare a list of samples shipped in the same cooler as the contaminated blank.

ACTION: Evaluate trip blank results against method blank results to determine if contaminant may be laboratory-derived. If results are not lab-related, qualify according to the table below.

If the sample concentration is < 5 × blank value, flag sample result non-detect "U" at the PQL or the concentration reported if greater than the PQL.

If the sample concentration is > 5 × blank value, no qualification is needed.

8.3 Were ambient blanks shipped with VPH samples and analyzed? **Yes** [X] No [ ] N/A [ ] Comments:

NOTE: *MADEP requires ambient (field) blanks per the following frequency:*

	Soil/Sediment	*Aqueous*	*Drinking Water*
Option 1	*Not Required*	*Not Required*	*Not Required*
Option 3	*1 per 10 samples*	*1 per 10 samples*	*1 per 10 samples*

8.4 Do any ambient blanks have positive results? Yes [ ] **No** [X] N/A [ ] Comments:

ACTION: Prepare a list of samples associated with the contaminated blank (all collected from the site on that day).

ACTION: Evaluate ambient blank results against method and trip blank results to determine if contaminant may be laboratory- and/or shipment-derived. If results are not lab- and/or shipment-related, qualify according to the table above (8.2).

8.5 Were rinsate blanks collected? Prior to evaluating rinsate blanks, obtain a list of the associated samples from the senior chemist. **Yes** [X] No [ ] N/A [ ] Comments: EQUIPMENT BLANKS

***NOTE**: MADEP does not specify the collection of rinsate blanks.*

8.6 Do any rinsate blanks have positive results? Yes [ ] **No** [X] N/A [ ] Comments:

ACTION: Evaluate rinsate results against blank results to determine if contaminant may be laboratory-, ambient-, or shipment-derived. If results are not lab-, ambient-, or shipment-related, qualify according to the table above (8.2).

9.0 Field Duplicates

9.1 Were field duplicate samples collected? Obtain a list of samples and their associated field duplicates. **Yes** [X] No [ ] N/A [ ] Comments:

9.2 Were field duplicates collected per the required frequency? **Yes** [X] No [ ] N/A [ ] Comments:

☐ SOW ☐ QAPP ☐ *MADEP Option 1(1 per 20)* ☐ *MADEP Option 3 (1 per 10)*

9.3 Was the RPD ≤ 50% for soils or ≤ 30% waters? Calculate the RPD for all results and attach to this review. **Yes** [X] No [ ] N/A [ ] Comments:

ACTION: RPD must be ≤50% for soil or ≤ 30% waters. Qualify data (J) for both sample results if the RPD is exceeded.

10.0 Application of Validation Qualifiers

Was any of the data qualified? **Yes** [X] No [ ] N/A [ ] Comments:

If so, apply data qualifiers directly to the DQE copy of laboratory report and **flag pages** for entry in database.

REFERENCES

MACTEC, Quality Assurance Project Plan for Remedial Investigation/Feasibility Study – Olin Chemical Superfund Site, Wilmington Property, 51 Eames Street, Wilmington, MA", MACTEC Engineering and Consulting. Draft .October 2008.

Massachusetts Department of Environmental Protection (MADEP), 1998. "Method for the Determination of Volatile Petroleum Hydrocarbons (VPH)"; Division of Environmental Analysis; Office of Research and Standards; Bureau of Waste Site Cleanup; January 1998.

Version 1.1, April 2002

OLIN CORPORATION
LEVEL I DATA QUALITY EVALUATION
STANDARD OPERATING PROCEDURE AND CHECKLIST
EXTRACTABLE PETROLEUM HYDROCARBONS BY METHOD MADEP-EPH-98-1

Reviewer/Date 2/12/10 Brenda L Carpenter
Sr. Review/Date Chris Ricciardi 6/3/10
Lab Report # ALC
~~LAW~~ MACTEC Project # 6107106016-12

1.0 Laboratory Deliverable Requirements

1.1 Laboratory Information: Was all of the following provided in the laboratory report? **Yes** [X] No [ ] N/A [ ] Comments:
Check items received.

☑ *Name of Laboratory* ☐ *Certification ID #* ☑ *Address* ☑ *Project ID* ☑ *Phone #* ☑ *Sample identification – Field and Laboratory*

Client Information: ☑ *Name* ☑ *Address* ☑ *Phone #* ☑ *Client Contact* *(IDs must be cross-referenced)*

ACTION: If no, contact lab for submission of missing or illegible information.

1.2 Laboratory Report Certification Statement ***Yes*** [X] *No* [ ] *N/A* [ ] *Comments:*

Does the laboratory report include a completed Analytical Report Certification in the required format?

***ACTION**: If no, contact lab for submission of missing certification or certification with correct format.*

1.3 Laboratory Case Narrative:** Are both of the following statements true?* ***Yes [X] *No* [ ] *N/A* [ ] *Comments:*

☑ *Narrative serves as an exception report for the project and method QA/QC performance.* ☐ *Narrative includes an explanation of each discrepancy on the Certification Statement.*

***ACTION**: If no, contact lab for submission of missing or illegible information.*

1.4 Chain of Custody (COC) **Yes** [X] No [ ] N/A [ ] Comments:

Does the laboratory report include the *original* Chain of Custody forms containing all samples in this SDG?

NOTE: Olin receives and maintains the *original* COC.

ACTION: If no, contact lab for submission of missing original COC.

1.5 Sample Receipt Information (*Cooler Receipt Form*): Were each of the following tasks completed and recorded upon receipt of the sample(s) into the laboratory? **Yes** [✓] No [ ] N/A [ ] Comments:

[✓] Sample temperature confirmed: must be 1° – 10° C. (If samples were sent by courier and delivered on the same day as collection, temperature requirement does not apply).

[✓] Container type noted [✓] Custody seals checked [✓] Condition observed [✓] pH verified (where applicable) [✓] Field and lab IDs cross referenced

ACTION: If no, contact lab for submission of missing or incomplete documentation.

1.5.1 Were the correct bottles and preservatives used? **Yes** [✓] No [ ] N/A [ ] Comments:

Water - 1 Liter amber bottle / 5 ml 1:1 HCl, cool to 4°C
Soil - 4 oz amber soil jar w/ Teflon lined cap / cool to 4°C

ACTION: If no, inform senior chemist. Document justification for change in container/volume (if applicable), qualify positive and non-detect data (J) data if cooler temperature exceeds 10°C. Rejection of data requires professional judgment

ACTION: If each VOA vial for a sample contains air bubbles or the VOA vial analyzed contained air bubbles, flag positives (J) and reject nondetects (R).

1.5.2 Were all samples delivered to the laboratory without breakage? **Yes** [✓] No [ ] N/A [ ] Comments:

1.5.3 Does the *Cooler Receipt Form* or Lab Narrative indicate other problems with sample receipt, condition of the samples, analytical problems or special circumstances affecting the quality of the data? Yes [ ] **No** [✓] N/A [ ] Comments:

1.6 Sample Results Section: *Was the following information supplied in the laboratory report for each sample?* **Yes** [✓] No [ ] N/A [ ] Comments:

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EXTRACTABLE PETROLEUM HYDROCARBONS BY METHOD MADEP

☐ Field ID and Lab ID ☐ *Date and time collected* ☐ Analyst Initials ☐ *Dilution Factor* ☐ % moisture or solids ☐ *Reporting limits*
☐ *Clean-up method* ☐ Analysis method ☐ *Preparation method* ☐ *Date of preparation/extraction/digestion clean-up and analysis, where applicable* ☐ Matrix ☐ Target analytes and concentrations ☐ Units (soils must be reported in dry weight)

ACTION: If no, contact lab for submission of missing or incomplete information.

1.7 QA/QC Information: Was the following information provided in the laboratory report for each sample batch? **Yes** [X] No [ ] N/A [ ] Comments:

☐ Method blank results ☐ LCS recoveries ☐ MS/MSD recoveries and RPDs ☐ Laboratory duplicate results (where applicable) ☐ Surrogate recoveries

ACTION: If no, contact lab for submission of missing or incomplete information.

2.0 Holding Times

Yes [X] No [X] N/A [ ] Comments:

Have any technical holding times, determined from date of collection to date of analysis, been exceeded? For water samples, the holding time is 14 days from sampling to extraction and 40 days from extraction to analysis. For soil samples, the holding time is 7 days from sampling to extraction and 40 days from extraction to analysis.

NOTE: List samples that exceeded hold time with number of days exceeded on checklist.

ACTION: If technical holding times are exceeded, qualify all positive results (J) and reject (R) all non-detect results.

3.0 Laboratory Method

3.1 Was the correct laboratory method used? **Yes** [X] No [ ] N/A [ ] Comments:

Extractable Petroleum Hydrocarbons MADEP-EPH-98-1

ACTION: If no, contact lab to provide justification for method change compared to the requested method. Contact senior chemist to inform Client of change or to request variance.

3.2 Are the practical quantitation limits the same as those specified by the **Yes** [X] No [ ] N/A [ ] Comments:

☐ SOW ☒ QAPP ☒ Lab?

ACTION: If no, evaluate change with respect to sample matrix, preparation, dilution, moisture, etc. If sample PQL is indeterminate, contact lab for explanation.

3.3 Are the appropriate parameter results present for each sample in the SDG? **Yes** [X] No [ ] N/A [ ] Comments:

ACTION: If no, check Request for Analysis to verify if method was ordered and COC to verify that it was sent, and contact lab for resubmission of the missing data

3.4 If *dilutions were required, were dilution factors reported?* **Yes** [X] No [ ] N/A [ ] Comments:

ACTION: If no, contact the lab for submission.

4.0 Method Blanks

4.1 Is the Method Blank Summary present? **Yes** [X] No [ ] N/A [ ] Comments:

ACTION: If no, call the laboratory for submission of missing data.

4.2 Was a method blank analyzed for each analysis batch of EPH field samples of 20 or less? **Yes** [X] No [ ] N/A [ ] Comments:

ACTION: If no, document discrepancy in case narrative and contact lab for justification. Consult senior chemist for action needed.

4.3 Is the method blank less than the PQL? (See attached table for PQLs) Yes [X] **No** [ ] N/A [ ] Comments:

4.4 Do any method blanks have positive results for EPHs? Qualify data according to the following: Yes [ ] **No** [X] N/A [ ] Comments:

If the sample concentration is < 5 × blank value, flag sample result "JB"

If the sample concentration is > 5 × blank value, no qualification is needed.

ACTION: If any blank has positive results, list all the concentrations detected and flagging level (flagging level = 5 × blank value) on the checklist. List all affected samples and their qualifiers.

5.0 Laboratory Control Standard

5.1 Was a laboratory control standard run with each analytical batch of 20 samples or less? **Yes** [X] No [ ] N/A [ ] Comments:

ACTION: Call laboratory for LCS form submittal. If data are not available, reject (R) data associated with that batch.

5.2 Is a LCS Summary Form present? **Yes** [X] No [ ] N/A [ ] Comments:

ACTION: If no, contact lab for resubmission of missing data.

5.3 Is the recovery of any analyte outside of control limits of 40-140%? Yes [ ] **No** [X] N/A [ ] Comments:

NOTE: *A second source LCS containing at least five target analytes from each fraction is required by MADEP.*

NOTE: *MADEP guidelines list LCS recovery limits as 40-140 for all analytes except C36. The laboratory must identify analytes that routinely exceed these limits. See the attached table for a listing of MADEP LCS control limits vs. the control limits listed in the QAPP.*

ACTION: If recovery is above the upper limit, qualify all positive sample results within the batch as (J). If recovery is below the lower limit but > 10%, qualify all positive and no-detect results within the batch as (J). If LCS recovery is <10%, positive and non-detect results are rejected (R) unless the QC limit for that compound is below 10% (flag as above).

5.4 Are 80% of LCS recoveries within laboratory control limits? **Yes** [X] No [ ] N/A [ ] Comments:

ACTION: If 80% of LCS recoveries are not within limits, use professional judgment and consult Senior Chemist. If more than half of the recoveries are above control limits, qualify all positive results as (J). If more than half of the recoveries are below control limits, batch may require rejection and reanalysis

6.0 Matrix Spikes

6.1 Were project-specific MS/MSDs collected? List project samples that were spiked.

Yes [X] No [ ] N/A [ ] Comments:

ACTION: If no, contact senior chemist to see if any were specified.

6.2 Is the MS/MSD Recovery Form present?

Yes [X] No [ ] N/A [ ] Comments:

ACTION: If no, contact lab for resubmission of missing data.

6.3 Were matrix spikes analyzed at the required frequency of 1 per 20 samples per matrix?

Yes [X] No [ ] N/A [ ] Comments:

ACTION: If any matrix spike data is missing, call lab for resubmission.

6.4 Are any EPH spike recoveries outside of the QC limits?

Yes [X] **No** [ ] N/A [ ] Comments:

NOTE: $\%R = \frac{(SSR-SR)}{SA} \times 100\%$ Where: SSR = Spiked sample result, SR = Sample result, SA = Spike added

SAMPLE CONC >4X SPIKE CONC - NO QUALS SEE 360-24563

NOTE: *A second source MS/MSD containing at least five target analytes from each fraction is required by MADEP.*

NOTE: *MADEP guidelines list MS/MSD recovery limits as 40-140 for all analytes except C36. The laboratory must identify analytes that routinely exceed these limits. See the attached table for a listing of MADEP LCS control limits vs. the control limits listed in the QAPP*

C19-C36, C9-C18 } OUT LOW J/UJ in ASSOC. SAMPLE AND FIELD DUPLICATE

NOTES: 1) If only one of the recoveries for an MS/MSD pair is outside of the control limits, no qualification is necessary. Use professional judgment for the MS/MSD flags.
2) If the MS/MSD was performed by the laboratory on a non-project sample, no qualification is required.

360-24563-5, 360-24563-4 } J/UJ

NOTE: Laboratory control limits apply when spiked sample results fall within the normal calibration range. If dilutions are required due to high sample concentrations, the data is evaluated, but no flags are applied.

ACTION: MS/MSD flags only apply to the sample spiked. If the recoveries of the MS and MSD exceed the upper control limit, qualify positive results as estimated (J). If the recoveries of the MS and MSD are lower than the lower control limit but > 30%, qualify both positive results and non-detects (J). If the MS/MSD recovery is < 30% and the sample is non-detect, the results are considered unusable and flagged (R).

6.5 Are any RPDs for MS/MSD recoveries outside of the QC limits of ≤ *50 for soil and ≤ 30 for water*? Yes [ ] **No** [X] N/A [ ] Comments:

NOTE: $RPD = \frac{S-D}{(S+D)/2} \times 100\%$ Where: S = MS sample result
D = MSD sample result

NOTE: *MADEP guidelines list MS/MSD RPD limits for water and soil as ≤ 50. See the attached table for a listing of MADEP MS/MSD RPD limits vs. the control limits listed in the QAPP.*

NOTE: Laboratory control limits apply when spiked sample results fall within the normal calibration range. If dilutions are required due to high sample concentrations, the data are evaluated, but no flags are applied.

ACTION: If the RPD exceeds the control limit, qualify positive and non-detects results (J).

7.0 Surrogate Recoveries

Were one or more EPH surrogate recoveries outside of laboratory limits for any sample or method blank? If yes, were samples re-analyzed?

Yes [X] **No** [ ] N/A [ ] Comments:

YES SURR OUT LOW

RE-ANALYSIS W/ SIMILAR RESULTS

OR DILUTED OUT

NOTE: %R = QD x 100% Where: S = MS sample result
D = MSD sample result

NOTE: *MADEP guidelines require at least two extraction and two fractionation surrogates, and lists recovery limits as 40-140% for all surrogates. See the attached table for a listing of MADEP surrogate limits vs. the control limits listed in the QAPP*

NOTE: If surrogate recoveries fail due to dilution, results are not flagged. Document on checklist and in the case narrative.

ACTION: If recoveries are >10%, but fail to meet QC criteria: (1) For recoveries below the QC limit, qualify non-detects and positives (J), and (2) For recoveries above the QC limit, qualify only positives (J). If any surrogate recovery is <10% (unless the QC limits are below 10%, in which case, results are flagged as stated above), flag positives (J) and reject nondetects (R).

8.0 Sampling Accuracy

8.1 Were rinsate blanks collected? Prior to evaluating rinsate blanks, obtain a list of the associated samples from the project chemist.

Yes [X] **No** [ ] N/A [ ] Comments: EQUIPMENT BLANKS COLLECTED ALL NO

NOTE: *MADEP does not specify the collection of rinsate blanks.*

8.2 Do any rinsate blanks have positive results?

Yes [ ] **No** [X] N/A [ ] Comments:

ACTION: Evaluate rinsate results against other blank results to determine if contaminant may be laboratory-, ambient, or shipment-derived. If results are not lab-, ambient, or shipment related, qualify according to the table below.

Sample conc. < 5x blank value:	Sample conc. > 5x blank value:
Flag sample result "JB"	No qualification is needed

9.0 Field Duplicates

9.1 Were field duplicate samples collected? Obtain a list of the samples and their associated field duplicates. Yes [X] **No** [ ] N/A [ ] Comments:

9.2 Were field duplicates collected per the required frequency? **Yes** [X] No [ ] N/A [ ] Comments:

☐ SOW ☐ QAPP ☐ *MADEP Option 1(1 per 20)* ☐ *MADEP Option 3 (1 per 10)*

9.3 Was the RPD ≤ 50% for soils or waters? Calculate the RPD for all results and attach to this review. **Yes** [X] No [ ] N/A [ ] Comments:

ACTION: RPD must be ≤50% for soil and water. Qualify data (J) for both sample results if the RPD exceeds 50%.

10.0 Application of Validation Qualifiers

Was any of the data qualified? Yes [X] **No** [ ] N/A [ ] Comments:

If so, apply data qualifiers directly to the DQE copy of laboratory report and **flag pages** for entry in database.

REFERENCES

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MADEP, 2001. Massachusetts Department of Environmental Protection Bureau of Waste Site Cleanup, "Massachusetts Quality Assurance / Quality Control (QA / QC Requirements," BWSC-CAM, Interim Final Draft, Revision No. 2, 5 October 2001.

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Job Number: 360-24194-1
Sdg Number: OCRI-02

Client Sample ID: **OC-SB-421-0.0/1.0-XXX**
Lab Sample ID: **360-24194-1**

Date Sampled: 08/19/2009 0740
Date Received: 08/19/2009 1730
Client Matrix: Solid
Percent Solids: 95

Analyte	Result/Qualifier		Unit	RL	RL	Dilution
Method: MAVPH			Date Analyzed:		08/26/2009 1856	
Prep Method: 5035			Date Prepared:		08/20/2009 1447	
C5-C8 Aliphatics (unadjusted)	ND		mg/Kg	2.9	2.9	1.0
C5-C8 Aliphatics (adjusted)	ND		mg/Kg	2.9	2.9	1.0
C9-C10 Aromatics	ND		mg/Kg	2.9	2.9	1.0
C9-C12 Aliphatics (unadjusted)	ND		mg/Kg	2.9	2.9	1.0
C9-C12 Aliphatics (adjusted)	ND		mg/Kg	2.9	2.9	1.0
Total VPH	ND		mg/Kg	2.9	2.9	1.0
Surrogate					Acceptance Limits	
2,5-Dibromotoluene (fid)	84		%		70 - 130	
2,5-Dibromotoluene (pid)	70		%		70 - 130	
Method: MA-EPH			Date Analyzed:		08/25/2009 1223	
Prep Method: 3546			Date Prepared:		08/24/2009 1233	
C11-C22 Aromatics (unadjusted)	13000		mg/Kg	350	350	100
C11-C22 Aromatics (Adjusted)	390		mg/Kg	350	350	100
C19-C36 Aliphatics	ND		mg/Kg	350	350	100
C9-C18 Aliphatics	ND		mg/Kg	350	350	100
Total EPH	390		mg/Kg	350	350	100
Surrogate					Acceptance Limits	
o-Terphenyl	0	X D	%		40 - 140	
2-Fluorobiphenyl	77		%		40 - 140	
2-Bromonaphthalene	72		%		40 - 140	
1-Chlorooctadecane	0	D X	%		40 - 140	
Method: Soluble-300.0			Date Analyzed:		08/26/2009 0208	
Sulfate	ND		mg/Kg	39	39	1.0
Chloride	ND		mg/Kg	19	19	1.0
Method: L107-06-1B			Date Analyzed:		08/26/2009 1141	
Prep Method: Distill/Ammonia			Date Prepared:		08/26/2009 0850	
Ammonia	23		mg/Kg	7.7	7.7	1.0
Method: Lloyd Kahn			Date Analyzed:		09/01/2009 1332	
Total Organic Carbon	27000		mg/Kg	1000	1000	1.0
Method: Moisture			Date Analyzed:		08/21/2009 1359	
Percent Moisture	4.7		%	1.0	1.0	1.0

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Job Number: 360-24194-1
Sdg Number: OCRI-02

Client Sample ID: **OC-SB-421-10.5/12.5-XXX**
Lab Sample ID: **360-24194-2**

Date Sampled: 08/19/2009 0805
Date Received: 08/19/2009 1730
Client Matrix: Solid
Percent Solids: 91

Analyte	Result/Qualifier		Unit	RL	RL	Dilution
Method: MAVPH			Date Analyzed:		08/26/2009 1929	
Prep Method: 5035			Date Prepared:		08/26/2009 1447	
C5-C8 Aliphatics (unadjusted)	6.4	J	mg/Kg	2.6	2.6	1.0
C5-C8 Aliphatics (adjusted)	6.4		mg/Kg	2.6	2.6	1.0
C9-C10 Aromatics	3.2		mg/Kg	2.6	2.6	1.0
C9-C12 Aliphatics (unadjusted)	5.8		mg/Kg	2.6	2.6	1.0
C9-C12 Aliphatics (adjusted)	ND		mg/Kg	2.6	2.6	1.0
Total VPH	9.6		mg/Kg	2.6	2.6	1.0
Surrogate					Acceptance Limits	
2,5-Dibromotoluene (fid)	62	X	%		70 - 130	
2,5-Dibromotoluene (pid)	64	X	%		70 - 130	
Method: MA-EPH			Date Analyzed:		08/25/2009 1411	
Prep Method: 3546			Date Prepared:		08/24/2009 1233	
C11-C22 Aromatics (unadjusted)	170		mg/Kg	3.6	3.6	1.0
C11-C22 Aromatics (Adjusted)	88		mg/Kg	3.6	3.6	1.0
C19-C36 Aliphatics	ND		mg/Kg	3.6	3.6	1.0
C9-C18 Aliphatics	ND		mg/Kg	3.6	3.6	1.0
Total EPH	88		mg/Kg	3.6	3.6	1.0
Surrogate					Acceptance Limits	
o-Terphenyl	67		%		40 - 140	
2-Fluorobiphenyl	64		%		40 - 140	
2-Bromonaphthalene	76		%		40 - 140	
1-Chlorooctadecane	58		%		40 - 140	
Method: Soluble-300.0			Date Analyzed:		08/26/2009 0223	
Sulfate	ND		mg/Kg	41	41	1.0
Chloride	ND		mg/Kg	21	21	1.0
Method: L107-06-1B			Date Analyzed:		08/26/2009 1142	
Prep Method: Distill/Ammonia			Date Prepared:		08/26/2009 0850	
Ammonia	120		mg/Kg	8.0	8.0	1.0
Method: Lloyd Kahn			Date Analyzed:		09/01/2009 1332	
Total Organic Carbon	ND		mg/Kg	1000	1000	1.0
Method: Moisture			Date Analyzed:		08/21/2009 1359	
Percent Moisture	9.1		%	1.0	1.0	1.0

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Job Number: 360-24194-1
Sdg Number: OCRI-02

Client Sample ID: **OC-SB-421-8.0/10.0-XXX**
Lab Sample ID: **360-24194-3**

Date Sampled: 08/19/2009 0745
Date Received: 08/19/2009 1730
Client Matrix: Solid
Percent Solids: 93

Analyte	Result/Qualifier		Unit	RL	RL	Dilution
Method: MAVPH			Date Analyzed:		08/26/2009 2002	
Prep Method: 5035			Date Prepared:		08/20/2009 1447	
C5-C8 Aliphatics (unadjusted)	ND		mg/Kg	2.5	2.5	1.0
C5-C8 Aliphatics (adjusted)	ND		mg/Kg	2.5	2.5	1.0
C9-C10 Aromatics	ND J		mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (unadjusted)	ND		mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (adjusted)	ND		mg/Kg	2.5	2.5	1.0
Total VPH	ND J		mg/Kg	2.5	2.5	1.0
Surrogate					Acceptance Limits	
2,5-Dibromotoluene (fid)	75		%		70 - 130	
2,5-Dibromotoluene (pid)	68	X	%		70 - 130	
Method: MA-EPH			Date Analyzed:		08/25/2009 1436	
Prep Method: 3546			Date Prepared:		08/24/2009 1233	
C11-C22 Aromatics (unadjusted)	120		mg/Kg	3.5	3.5	1.0
C11-C22 Aromatics (Adjusted)	23		mg/Kg	3.5	3.5	1.0
C19-C36 Aliphatics	ND		mg/Kg	3.5	3.5	1.0
C9-C18 Aliphatics	9.4		mg/Kg	3.5	3.5	1.0
Total EPH	32		mg/Kg	3.5	3.5	1.0
Surrogate					Acceptance Limits	
o-Terphenyl	77		%		40 - 140	
2-Fluorobiphenyl	81		%		40 - 140	
2-Bromonaphthalene	77		%		40 - 140	
1-Chlorooctadecane	59		%		40 - 140	
Method: Soluble-300.0			Date Analyzed:		08/26/2009 0238	
Sulfate	ND		mg/Kg	43	43	1.0
Chloride	ND		mg/Kg	22	22	1.0
Method: L107-06-1B			Date Analyzed:		08/26/2009 1143	
Prep Method: Distill/Ammonia			Date Prepared:		08/26/2009 0850	
Ammonia	ND		mg/Kg	7.2	7.2	1.0
Method: Lloyd Kahn			Date Analyzed:		09/01/2009 1332	
Total Organic Carbon	ND		mg/Kg	1000	1000	1.0
Method: Moisture			Date Analyzed:		08/21/2009 1359	
Percent Moisture	7.4		%	1.0	1.0	1.0

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Job Number: 360-24194-1
Sdg Number: OCRI-02

Client Sample ID: **OC-TBK-003**
Lab Sample ID: **360-24194-11**

Date Sampled: 08/19/2009 1450
Date Received: 08/19/2009 1730
Client Matrix: Solid

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		08/26/2009 2035	
Prep Method: 5035		Date Prepared:		08/26/2009 1447	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	2.5	2.5	1.0
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	2.5	2.5	1.0
C9-C10 Aromatics	ND	mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (unadjusted)	ND	mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	2.5	2.5	1.0
Total VPH	ND	mg/Kg	2.5	2.5	1.0

Surrogate			Acceptance Limits
2,5-Dibromotoluene (fid)	83	%	70 - 130
2,5-Dibromotoluene (pid)	82	%	70 - 130

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Job Number: 360-24194-1
Sdg Number: OCRI-02

Client Sample ID: **OC-EBK-002**
Lab Sample ID: **360-24194-12**

Date Sampled: 08/19/2009 0930
Date Received: 08/19/2009 1730
Client Matrix: Water

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		08/24/2009 2131	
Prep Method: 5030B		Date Prepared:		08/24/2009 2131	
C5-C8 Aliphatics (unadjusted)	ND	ug/L	50	50	1.0
C5-C8 Aliphatics (adjusted)	ND	ug/L	50	50	1.0
C9-C10 Aromatics	ND	ug/L	50	50	1.0
C9-C12 Aliphatics (unadjusted)	ND	ug/L	50	50	1.0
C9-C12 Aliphatics (adjusted)	ND	ug/L	50	50	1.0
Total VPH	ND	ug/L	50	50	1.0
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	96	%		70 - 130	
2,5-Dibromotoluene (pid)	97	%		70 - 130	
Method: MA-EPH		Date Analyzed:		08/28/2009 1454	
Prep Method: 3510C		Date Prepared:		08/27/2009 1149	
C11-C22 Aromatics (unadjusted)	ND	ug/L	100	100	1.0
C11-C22 Aromatics (Adjusted)	ND	ug/L	100	100	1.0
C19-C36 Aliphatics	ND	ug/L	100	100	1.0
C9-C18 Aliphatics	ND	ug/L	100	100	1.0
Total EPH	ND	ug/L	100	100	1.0
Surrogate				Acceptance Limits	
o-Terphenyl	77	%		40 - 140	
2-Fluorobiphenyl	85	%		40 - 140	
2-Bromonaphthalene	76	%		40 - 140	
1-Chlorooctadecane	61	%		40 - 140	
Method: 300.0		Date Analyzed:		08/27/2009 1857	
Sulfate	ND	mg/L	2.0	2.0	1.0
Chloride	ND	mg/L	1.0	1.0	1.0
Method: L107-06-1B		Date Analyzed:		08/26/2009 1135	
Prep Method: Distill/Ammonia		Date Prepared:		08/25/2009 1146	
Ammonia	ND	mg/L	0.10	0.10	1.0

08/31/2009 and analyzed on 09/02/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved with the exception of:

2,4,6-Tribromophenol, 2-Fluorobiphenyl, 2-Fluorophenol, Nitrobenzene-d5, Phenol-d5 and Terphenyl-d14 failed the surrogate recovery criteria low for 360-24194-1. Refer to the QC report for details.

General method information:
Sample 360-24194-1(10X) required dilution prior to analysis due to thick black and oily extract.
The reporting limits have been adjusted accordingly.

Reporting NDMA only for these samples in batch 48454. Internal standard associated with NDMA is 1,4-Dichlorobenzene-D4. Samples in batch 48454 all had acceptable internal standard results for 1,4-Dichlorobenzene-D4. Some samples exhibited matrix interference causing internal standard failures for the later eluting internal standards. These failures do not bias the results of NDMA.

The surrogate associated with NDMA in Nitrobenzene-d5 (the surrogate closely eluting with NDMA), as well as the other base neutral surrogates. The results of the acid surrogates do not affect these results. Some acid surrogate failures can be seen.

No other difficulties were encountered during the semivolatile organics analyses.

All other quality control parameters were within the acceptance limits.

SEMIVOLATILE ORGANICS (water)

Sample 360-24194-12 was analyzed for semivolatile organics in accordance with EPA SW846 Method 8270C LL. The samples were prepared on 08/25/2009 and analyzed on 08/27/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved with the exception of:

Phenol-d5 and Phenol-d5 failed the surrogate recovery criteria low for 360-24194-12. Phenol-d5 failed the surrogate recovery criteria low for LCS/LCSD 360-48124/2-A LCS. Per MCP, re-extraction is only required if two or more surrogates from any one fraction or any single surrogate falls below 10%.

4-Nitrophenol, Aniline, Benzaldehyde, Caprolactam, N-Nitrosodimethylamine and Phenol failed the LCS/LCSD recovery criteria low for LCS 360-48124/2-A.

General method information:
Di-n-butyl phthalate was detected in method blank MB 360-48124/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged. Refer to the QC report for details.

For batch 48209 ICAL: Quadratic regression used for Bis(2-chloroisopropyl)ether, Benzoic acid, Benzidine and 3,3-Dichlorobenzidine.

No other difficulties were encountered during the semivolatile organics analysis.

All other quality control parameters were within the acceptance limits.

EXTRACTABLE PETROLEUM HYDROCARBONS (soils)

Samples 360-24194-1 through 360-24194-3 were analyzed for extractable petroleum hydrocarbons in accordance with MADEP EPH. The samples were prepared on 08/24/2009 and analyzed on 08/25/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved.

General method information:
Sample 360-24194-1(100X) required dilution prior to analysis, surrogates diluted out. The reporting limits have been

adjusted accordingly.

At the request of the client, only the carbon ranges are reported for this job.

According to EPH method reference 11.2.6.2, using GC/MS, the laboratory has identified a single component contaminant that appears at the same retention time in all laboratory and field samples. This contaminant is derived from the method's SPE cartridge and is not included in the calculation of the C11-C22 Aromatics range.

The LCS/LCSD target and ranges recovered within MCP control criteria. While n-nonanerecovered low in the LCS (27%) and LCSD (24%), the cumulative recovery of C9-C18 aliphatic compounds recovered within acceptable limits. In TestAmerica Westfield's experience, the n-nonane control limits should be considered advisory for this method.
No other difficulties were encountered during the EPH analyses.

All other quality control parameters were within the acceptance limits.

EXTRACTABLE PETROLEUM HYDROCARBONS (water)

Sample 360-24194-12 was analyzed for extractable petroleum hydrocarbons in accordance with MADEP EPH. The samples were prepared on 08/27/2009 and analyzed on 08/28/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved.

General method information:
At the request of the client, only the carbon ranges are reported for this job.

According to EPH method reference 11.2.6.2, using GC/MS, the laboratory has identified a single component contaminant that appears at the same retention time in all laboratory and field samples. This contaminant is derived from the method's SPE cartridge and is not included in the calculation of the C11-C22 Aromatics range.

No difficulties were encountered during the EPH analysis.

All quality control parameters were within the acceptance limits.

VOLATILE PETROLEUM HYDROCARBONS (soils)

Samples 360-24194-1 through 360-24194-3 and 360-24194-11 were analyzed for volatile petroleum hydrocarbons in accordance with MADEP VPH. The samples were prepared on 08/20/2009 and 08/26/2009 and analyzed on 08/26/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved with the exception of:

2,5-Dibromotoluene (fid) and 2,5-Dibromotoluene (pid) failed the surrogate recovery criteria low for 360-24194-2.
2,5-Dibromotoluene (pid) failed the surrogate recovery criteria low for 360-24194-3.

Closing CCV had failing low surrogate, run is being used as client specified.

General method information:
At the request of the client, only the carbon ranges are reported for this job.

No other difficulties were encountered during the VPH analyses.

All other quality control parameters were within the acceptance limits.

VOLATILE PETROLEUM HYDROCARBONS (water)

Sample 360-24194-12 was analyzed for volatile petroleum hydrocarbons in accordance with MADEP VPH. The samples were analyzed on 08/24/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were

achieved.

General method information:
At the request of the client, only the carbon ranges are reported for this job.

No difficulties were encountered during the VPH analysis.

All quality control parameters were within the acceptance limits.

TOTAL METALS (soils)

Samples 360-24194-1, 360-24194-3, 360-24194-4, 360-24194-6, 360-24194-7 and 360-24194-9 were analyzed for total metals in accordance with EPA SW846 Method 6010B. The samples were prepared on 08/21/2009 and analyzed on 08/21/2009 and 08/24/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved with the exception of:

Potassium failed the LCSD recovery criteria low for LCSD 360-48015/3-A, the LCS was within control limits as was the rpd between the two standards.

General method information:
Sample 360-24194-6(2X) required dilution prior to analysis due to the presence of high concentration of the interfering element Aluminum. The reporting limits have been adjusted accordingly.

Calcium, Iron, Magnesium, Nickel and Tin were detected in method blank MB 360-48015/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

No other difficulties were encountered during the total metals analyses.

All other quality control parameters were within the acceptance limits.

TOTAL METALS (water)

Sample 360-24194-12 was analyzed for total metals in accordance with EPA SW846 Method 6010B. The samples were prepared and analyzed on 08/21/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved with the exception of:

The continuing calibration verification (CCV) for analytical batch 48048 exceeded control criteria (low) for Potassium (89%R). This check standard bracketed the MB and LCS/LCSD only. The bracketing CCVs for the sample data passed QA/QC criteria.

General method information:
Arsenic and Selenium were detected in method blank MB 360-48006/1-A at a level exceeding the method reporting limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

No other difficulties were encountered during the total metals analysis.

All other quality control parameters were within the acceptance limits.

TOTAL MERCURY (soils)

Samples 360-24194-1, 360-24194-3, 360-24194-4, 360-24194-6, 360-24194-7 and 360-24194-9 were analyzed for total mercury in accordance with EPA SW846 Method 7471A. The samples were prepared and analyzed on 08/21/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved.

Client: Olin Corporation

Job Number: 360-24194-1
Sdg Number: OCRI-02

Surrogate Recovery Report

MAVPH Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	F1O 25DBT2 %Rec	P1O 25DBT1 %Rec
360-24194-1	OC-SB-421-0.0/1.0-XXX	84	70
360-24194-2	OC-SB-421-10.5/12.5-XXX	62X	64X
360-24194-3	OC-SB-421-8.0/10.0-XXX	75	68X
360-24194-11	OC-TBK-003	83	82
MB 360-48216/3-A		100	99
LCS 360-48216/1-A		102	89
LCSD 360-48216/2-A		102	87

Surrogate	Acceptance Limits
25DBT = 2,5-Dibromotoluene (fid)	70-130
25DBT = 2,5-Dibromotoluene (pid)	70-130

Client: Olin Corporation

Job Number: 360-24194-1
Sdg Number: OCRI-02

Surrogate Recovery Report

MA-EPH Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	OTPH1 %Rec	FBP1 %Rec	2BN1 %Rec	1COD2 %Rec
360-24194-1	OC-SB-421-0.0/1.0-XXX	0X D	77	72	0D X
360-24194-2	OC-SB-421-10.5/12.5-XXX	67	64	76	58
360-24194-3	OC-SB-421-8.0/10.0-XXX	77	81	77	59
MB 360-48072/1-A		68	72	67	55
LCS 360-48072/2-A		68	76	68	63
LCSD 360-48072/3-A		63	79	70	56

Dil out no dilutes (100x)
Reporting limits elevated

Surrogate	Acceptance Limits
OTPH = o-Terphenyl	40-140
FBP = 2-Fluorobiphenyl	40-140
2BN = 2-Bromonaphthalene	40-140
1COD = 1-Chlorooctadecane	40-140

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Job Number: 360-24244-1
Sdg Number: OCRI-04

Client Sample ID: **OC-SB-432-0.0/1.0-XXX**
Lab Sample ID: **360-24244-1**

Date Sampled: 08/20/2009 1435
Date Received: 08/21/2009 1725
Client Matrix: Solid
Percent Solids: 93

Analyte	Result/Qualifier		Unit	RL	RL	Dilution
Method: MAVPH			Date Analyzed:		08/27/2009 0104	
Prep Method: 5035			Date Prepared:		08/26/2009 1447	
C5-C8 Aliphatics (unadjusted)	ND J		mg/Kg	3.2	3.2	1.0
C5-C8 Aliphatics (adjusted)	ND		mg/Kg	3.2	3.2	1.0
C9-C10 Aromatics	3.4		mg/Kg	3.2	3.2	1.0
C9-C12 Aliphatics (unadjusted)	ND		mg/Kg	3.2	3.2	1.0
C9-C12 Aliphatics (adjusted)	ND		mg/Kg	3.2	3.2	1.0
Total VPH	3.4		mg/Kg	3.2	3.2	1.0
Surrogate					Acceptance Limits	
2,5-Dibromotoluene (fid)	43	X	%		70 - 130	
2,5-Dibromotoluene (pid)	45	X	%		70 - 130	
Method: MA-EPH			Date Analyzed:		08/25/2009 1346	
Prep Method: 3546			Date Prepared:		08/24/2009 1233	
C11-C22 Aromatics (unadjusted)	1900		mg/Kg	35	35	10
C11-C22 Aromatics (Adjusted)	1900		mg/Kg	35	35	10
C19-C36 Aliphatics	77		mg/Kg	35	35	10
C9-C18 Aliphatics	ND		mg/Kg	35	35	10
Total EPH	2000		mg/Kg	35	35	10
Surrogate					Acceptance Limits	
o-Terphenyl	39	X	%		40 - 140	
2-Fluorobiphenyl	78		%		40 - 140	
2-Bromonaphthalene	79		%		40 - 140	
1-Chlorooctadecane	48		%		40 - 140	
Method: Soluble-300.0			Date Analyzed:		09/01/2009 2154	
Sulfate	280		mg/Kg	43	43	1.0
Chloride	90		mg/Kg	21	21	1.0
Method: L107-06-1B			Date Analyzed:		09/01/2009 1243	
Prep Method: Distill/Ammonia			Date Prepared:		08/31/2009 1250	
Ammonia	170		mg/Kg	6.4	6.4	1.0
Method: Moisture			Date Analyzed:		08/25/2009 1438	
Percent Moisture	6.6		%	1.0	1.0	1.0

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Job Number: 360-24244-1
Sdg Number: OCRI-04

Client Sample ID: OC-SB-432-14/16-XXX
Lab Sample ID: 360-24244-2

Date Sampled: 08/20/2009 1515
Date Received: 08/21/2009 1725
Client Matrix: Solid
Percent Solids: 91

Analyte	Result/Qualifier		Unit	RL	RL	Dilution
Method: MAVPH			Date Analyzed:		08/27/2009 0137	
Prep Method: 5035			Date Prepared:		08/26/2009 1447	
C5-C8 Aliphatics (unadjusted)	ND	J	mg/Kg	23	23	10
C5-C8 Aliphatics (adjusted)	ND		mg/Kg	23	23	10
C9-C10 Aromatics	61		mg/Kg	23	23	10
C9-C12 Aliphatics (unadjusted)	75		mg/Kg	23	23	10
C9-C12 Aliphatics (adjusted)	ND		mg/Kg	23	23	10
Total VPH	61		mg/Kg	23	23	10
Surrogate					Acceptance Limits	
2,5-Dibromotoluene (fid)	51	X	%		70 - 130	
2,5-Dibromotoluene (pid)	55	X	%		70 - 130	
Method: MA-EPH			Date Analyzed:		08/25/2009 1256	
Prep Method: 3546			Date Prepared:		08/24/2009 1233	
C11-C22 Aromatics (unadjusted)	1900		mg/Kg	72	72	20
C11-C22 Aromatics (Adjusted)	1700		mg/Kg	72	72	20
C19-C36 Aliphatics	110		mg/Kg	72	72	20
C9-C18 Aliphatics	ND		mg/Kg	72	72	20
Total EPH	1800		mg/Kg	72	72	20
Surrogate					Acceptance Limits	
o-Terphenyl	0	X D	%		40 - 140	
2-Fluorobiphenyl	78		%		40 - 140	
2-Bromonaphthalene	73		%		40 - 140	
1-Chlorooctadecane	0	D X	%		40 - 140	
Method: Soluble-300.0			Date Analyzed:		09/01/2009 2209	
Sulfate	ND		mg/Kg	43	43	1.0
Chloride	ND		mg/Kg	22	22	1.0
Method: L107-06-1B			Date Analyzed:		09/01/2009 1244	
Prep Method: Distill/Ammonia			Date Prepared:		08/31/2009 1250	
Ammonia	12		mg/Kg	6.8	6.8	1.0
Method: Moisture			Date Analyzed:		08/25/2009 1438	
Percent Moisture	8.7		%	1.0	1.0	1.0

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Job Number: 360-24244-1
Sdg Number: OCRI-04

Client Sample ID: OC-SB-432-5.0/7.0-XXX
Lab Sample ID: 360-24244-3

Date Sampled: 08/20/2009 1441
Date Received: 08/21/2009 1725
Client Matrix: Solid
Percent Solids: 88

Analyte	Result/Qualifier		Unit	RL	RL	Dilution
Method: MAVPH			Date Analyzed:		08/27/2009 0210	
Prep Method: 5035			Date Prepared:		08/26/2009 1447	
C5-C8 Aliphatics (unadjusted)	ND		mg/Kg	28	28	10
C5-C8 Aliphatics (adjusted)	ND		mg/Kg	28	28	10
C9-C10 Aromatics	36		mg/Kg	28	28	10
C9-C12 Aliphatics (unadjusted)	31		mg/Kg	28	28	10
C9-C12 Aliphatics (adjusted)	ND		mg/Kg	28	28	10
Total VPH	36		mg/Kg	28	28	10
Surrogate					Acceptance Limits	
2,5-Dibromotoluene (fid)	54	X	%		70 - 130	
2,5-Dibromotoluene (pid)	58	X	%		70 - 130	
Method: MA-EPH			Date Analyzed:		08/25/2009 1322	
Prep Method: 3546			Date Prepared:		08/24/2009 1233	
C11-C22 Aromatics (unadjusted)	4700		mg/Kg	37	37	10
C11-C22 Aromatics (Adjusted)	4700		mg/Kg	37	37	10
C19-C36 Aliphatics	69		mg/Kg	37	37	10
C9-C18 Aliphatics	40		mg/Kg	37	37	10
Total EPH	4800		mg/Kg	37	37	10
Surrogate					Acceptance Limits	
o-Terphenyl	48		%		40 - 140	
2-Fluorobiphenyl	59		%		40 - 140	
2-Bromonaphthalene	64		%		40 - 140	
1-Chlorooctadecane	48		%		40 - 140	
Method: Soluble-300.0			Date Analyzed:		09/01/2009 2225	
Sulfate	ND		mg/Kg	45	45	1.0
Chloride	ND		mg/Kg	22	22	1.0
Method: L107-06-1B			Date Analyzed:		09/01/2009 1247	
Prep Method: Distill/Ammonia			Date Prepared:		08/31/2009 1250	
Ammonia	12		mg/Kg	7.8	7.8	1.0
Method: Moisture			Date Analyzed:		08/25/2009 1438	
Percent Moisture	12		%	1.0	1.0	1.0

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Job Number: 360-24244-1
Sdg Number: OCRI-04

Client Sample ID: **OC-TBK-005**
Lab Sample ID: **360-24244-13**

Date Sampled: 08/21/2009 1435
Date Received: 08/21/2009 1725
Client Matrix: Solid

Analyte	Result/Qualifier		Unit	RL	RL	Dilution
Method: MAVPH			Date Analyzed:		08/27/2009 0243	
Prep Method: 5035			Date Prepared:		08/26/2009 1447	
C5-C8 Aliphatics (unadjusted)	ND		mg/Kg	2.5	2.5	1.0
C5-C8 Aliphatics (adjusted)	ND		mg/Kg	2.5	2.5	1.0
C9-C10 Aromatics	ND		mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (unadjusted)	ND		mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (adjusted)	ND		mg/Kg	2.5	2.5	1.0
Total VPH	ND		mg/Kg	2.5	2.5	1.0
Surrogate					Acceptance Limits	
2,5-Dibromotoluene (fid)	61	X	%		70 - 130	
2,5-Dibromotoluene (pid)	65	X	%		70 - 130	

Sample 360-24244-14 was analyzed for semivolatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8270C LL. The samples were prepared on 08/25/2009 and analyzed on 08/28/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved with the exception of:

Surrogates: Phenol-d5 failed the surrogate recovery criteria low for 360-24244-14, LCS and LCSD. In all cases, the recovery of Phenol-d5 was at or above 10%. Per method SOP, re-extraction is only required if two or more surrogates from any one fraction fail or any single surrogate falls below 10%.

4-Nitrophenol, Aniline, Benzaldehyde, Caprolactam, N-Nitrosodimethylamine and Phenol failed the recovery criteria low for LCS/LCSD 360-48124/2-A.

General method information:
ICAL: Quadratic regression used for Bis(2-chloroisopropyl)ether, Benzoic acid, Benzidine and 3,3-Dichlorobenzidine.

No other difficulties were encountered during the semivolatiles analysis.

All other quality control parameters were within the acceptance limits.

EXTRACTABLE PETROLEUM HYDROCARBONS (soils)

Samples 360-24244-1 through 360-24244-3 were analyzed for extractable petroleum hydrocarbons in accordance with MADEP EPH. The samples were prepared on 08/24/2009 and analyzed on 08/25/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved with the exception of:

Surrogates: o-Terphenyl failed the surrogate recovery criteria low for 360-24244-1. 1-Chlorooctadecane and o-Terphenyl failed the surrogate recovery criteria low for 360-24244-2 [diluted out (D)].

General method information:
According to EPH method reference 11.2.6.2, using GC/MS, the laboratory has identified a single component contaminant that appears at the same retention time in all laboratory and field samples. This contaminant is derived from the method's SPE cartridge and is not included in the calculation of the C11-C22 Aromatics range.

The LCS/LCSD target and ranges recovered within MCP control criteria. While n-nonanerecovered low LCS (27%) and LCSD (24%), the cumulative recovery of C9-C18 aliphatic compounds recovered within acceptable limits. In TestAmerica Westfield's experience, the n-nonane control limits should be considered advisory for this method.

Samples 360-24244-1(10X), 360-24244-2(20X) and 360-24244-3(10X) required dilution prior to analysis due to high ranges and sample matrix - black viscous extract. The reporting limits have been adjusted accordingly.

At the request of the client, only the carbon ranges are reported for this job.

No other difficulties were encountered during the EPH analyses.

All other quality control parameters were within the acceptance limits.

VOLATILE PETROLEUM HYDROCARBONS (soils)

Samples 360-24244-1 through 360-24244-3 and 360-24244-13 were analyzed for volatile petroleum hydrocarbons in accordance with MADEP VPH. The samples were prepared on 08/26/2009 and analyzed on 08/27/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved with the exception of:

Surrogates: 2,5-Dibromotoluene (fid) and 2,5-Dibromotoluene (pid) failed the surrogate recovery criteria low, whileTerphenyl-d14 failed the surrogate recovery criteria high for 360-24244-1, 360-24244-2, 360-24244-3 and 360-24244-13 TB. The data is reported after consultation with the client.

The closing CCV had failing low surrogate. The data is reported after consultation with the client.

General method information:
Samples 360-24244-2 and 360-24244-3(10X) required dilution prior to analysis due to the sample changing to a solid white color when methanol was added to the water prior to analysis. The reporting limits have been adjusted accordingly.

At the request of the client, only the carbon ranges are reported for this job.

No other difficulties were encountered during the VPH analyses.

All other quality control parameters were within the acceptance limits.

TOTAL METALS (soils)

Samples 360-24244-1 through 360-24244-4, 360-24244-6, 360-24244-7, 360-24244-9, 360-24244-10 and 360-24244-12 were analyzed for total metals in accordance with EPA SW846 Method 6010B. The samples were prepared and analyzed on 08/25/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved with the exception of:

Antimony, Barium, Thallium and Calcium failed the MS recovery criteria low for the matrix spike of sample 360-24244-1. Aluminum, Iron, Magnesium, Potassium and Zinc failed the MS recovery criteria high. The associated laboratory control sample (LCS) met acceptance criteria.

Lead and Nickel exceeded the duplicate rpd limit for the duplicate sample 360-24244-1.

General method information:
Sample 360-24244-1(5X) required dilution prior to analysis due to the abundance of the target analyte Calcium. The reporting limits have been adjusted accordingly.

Several analytes were detected in method blank MB 360-48107/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged. Refer to the QC report for details.

No other difficulties were encountered during the total metals analyses.

All other quality control parameters were within the acceptance limits.

TOTAL MERCURY (soils)

Samples 360-24244-1 through 360-24244-4, 360-24244-6, 360-24244-7, 360-24244-9, 360-24244-10 and 360-24244-12 were analyzed for total mercury in accordance with EPA SW846 Method 7471A. The samples were prepared on 08/25/2009 and analyzed on 08/26/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved.

No difficulties were encountered during the total mercury analyses.

All quality control parameters were within the acceptance limits.

TOTAL MERCURY (water)
Sample 360-24244-14 was analyzed for total mercury in accordance with EPA SW-846 Method 7470A. The samples were prepared and analyzed 08/25/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved.

No difficulties were encountered during the mercury analysis.

All quality control parameters were within the acceptance limits.

Client: Olin Corporation

Job Number: 360-24244-1
Sdg Number: OCRI-04

Surrogate Recovery Report

MAVPH Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	25DBT2 %Rec	25DBT1 %Rec
360-24244-1	OC-SB-432-0.0/1.0-XXX	43X	45X
360-24244-2	OC-SB-432-14/16-XXX	51X	55X
360-24244-3	OC-SB-432-5.0/7.0-XXX	54X	58X
360-24244-13	OC-TBK-005	61X	65X
MB 360-48216/3-A		100	99
LCS 360-48216/1-A		102	89
LCSD 360-48216/2-A		102	87

Surrogate	Acceptance Limits
25DBT = 2,5-Dibromotoluene (fid)	70-130
25DBT = 2,5-Dibromotoluene (pid)	70-130

Client: Olin Corporation

Job Number: 360-24244-1
Sdg Number: OCRI-04

Surrogate Recovery Report

MA-EPH Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	OTPH1 %Rec	FBP1 %Rec	2BN1 %Rec	1COD2 %Rec
360-24244-1	OC-SB-432-0.0/1.0-XXX	39X	78	79	48
360-24244-2	OC-SB-432-14/16-XXX	0X D	78	73	0D X
360-24244-3	OC-SB-432-5.0/7.0-XXX	48	59	64	48
MB 360-48072/1-A		68	72	67	55
LCS 360-48072/2-A		68	76	68	63
LCSD 360-48072/3-A		63	79	70	56

Surrogate	Acceptance Limits
OTPH = o-Terphenyl	40-140
FBP = 2-Fluorobiphenyl	40-140
2BN = 2-Bromonaphthalene	40-140
1COD = 1-Chlorooctadecane	40-140

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Job Number: 360-24251-1
Sdg Number: OCRI-05

Client Sample ID: OC-SB-440-0.0/1.0-XXX
Lab Sample ID: 360-24251-8

Date Sampled: 08/24/2009 1140
Date Received: 08/24/2009 1910
Client Matrix: Solid
Percent Solids: 97

Analyte	Result/Qualifier		Unit	RL	RL	Dilution
Method: MAVPH			Date Analyzed:		08/27/2009 0316	
Prep Method: 5035			Date Prepared:		08/26/2009 1447	
C5-C8 Aliphatics (unadjusted)	ND	J	mg/Kg	2.4	2.4	1.0
C5-C8 Aliphatics (adjusted)	ND	J	mg/Kg	2.4	2.4	1.0
C9-C10 Aromatics	ND	J	mg/Kg	2.4	2.4	1.0
C9-C12 Aliphatics (unadjusted)	ND	J	mg/Kg	2.4	2.4	1.0
C9-C12 Aliphatics (adjusted)	ND	J	mg/Kg	2.4	2.4	1.0
Total VPH	ND	J	mg/Kg	2.4	2.4	1.0
Surrogate					Acceptance Limits	
2,5-Dibromotoluene (fid)	58	X	%		70 - 130	
2,5-Dibromotoluene (pid)	62	X	%		70 - 130	
Method: MA-EPH			Date Analyzed:		09/01/2009 1659	
Prep Method: 3546			Date Prepared:		08/31/2009 1504	
C11-C22 Aromatics (unadjusted)	8.9		mg/Kg	3.4	3.4	1.0
C11-C22 Aromatics (Adjusted)	8.1		mg/Kg	3.4	3.4	1.0
C19-C36 Aliphatics	3.8		mg/Kg	3.4	3.4	1.0
C9-C18 Aliphatics	ND		mg/Kg	3.4	3.4	1.0
Total EPH	12		mg/Kg	3.4	3.4	1.0
Surrogate					Acceptance Limits	
o-Terphenyl	86		%		40 - 140	
2-Fluorobiphenyl	87		%		40 - 140	
2-Bromonaphthalene	86		%		40 - 140	
1-Chlorooctadecane	74		%		40 - 140	
Method: Soluble-300.0			Date Analyzed:		09/03/2009 1423	
Sulfate	ND		mg/Kg	41	41	1.0
Chloride	ND		mg/Kg	21	21	1.0
Method: L107-06-1B			Date Analyzed:		09/03/2009 1350	
Prep Method: Distill/Ammonia			Date Prepared:		09/02/2009 1425	
Ammonia	11		mg/Kg	6.5	6.5	1.0
Method: Moisture			Date Analyzed:		08/26/2009 1223	
Percent Moisture	2.6		%	1.0	1.0	1.0

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Job Number: 360-24251-1
Sdg Number: OCRI-05

Client Sample ID: **OC-SB-440-23/25-XXX**
Lab Sample ID: **360-24251-9**

Date Sampled: 08/24/2009 1230
Date Received: 08/24/2009 1910
Client Matrix: Solid
Percent Solids: 91

Analyte	Result/Qualifier		Unit	RL	RL	Dilution
Method: MAVPH			Date Analyzed:		08/27/2009 0348	
Prep Method: 5035			Date Prepared:		08/26/2009 1447	
C5-C8 Aliphatics (unadjusted)	ND	J	mg/Kg	2.4	2.4	1.0
C5-C8 Aliphatics (adjusted)	ND	J	mg/Kg	2.4	2.4	1.0
C9-C10 Aromatics	ND	J	mg/Kg	2.4	2.4	1.0
C9-C12 Aliphatics (unadjusted)	ND	J	mg/Kg	2.4	2.4	1.0
C9-C12 Aliphatics (adjusted)	ND	J	mg/Kg	2.4	2.4	1.0
Total VPH	ND	J	mg/Kg	2.4	2.4	1.0
Surrogate					Acceptance Limits	
2,5-Dibromotoluene (fid)	57	X	%		70 - 130	
2,5-Dibromotoluene (pid)	60	X	%		70 - 130	
Method: MA-EPH			Date Analyzed:		09/01/2009 1724	
Prep Method: 3546			Date Prepared:		08/31/2009 1504	
C11-C22 Aromatics (unadjusted)	ND		mg/Kg	3.6	3.6	1.0
C11-C22 Aromatics (Adjusted)	ND		mg/Kg	3.6	3.6	1.0
C19-C36 Aliphatics	ND		mg/Kg	3.6	3.6	1.0
C9-C18 Aliphatics	ND		mg/Kg	3.6	3.6	1.0
Total EPH	ND		mg/Kg	3.6	3.6	1.0
Surrogate					Acceptance Limits	
o-Terphenyl	79		%		40 - 140	
2-Fluorobiphenyl	90		%		40 - 140	
2-Bromonaphthalene	88		%		40 - 140	
1-Chlorooctadecane	62		%		40 - 140	
Method: Soluble-300.0			Date Analyzed:		09/03/2009 1508	
Sulfate	45		mg/Kg	44	44	1.0
Chloride	ND		mg/Kg	22	22	1.0
Method: L107-06-1B			Date Analyzed:		09/03/2009 1351	
Prep Method: Distill/Ammonia			Date Prepared:		09/02/2009 1425	
Ammonia	170		mg/Kg	5.9	5.9	1.0
Method: Moisture			Date Analyzed:		08/26/2009 1223	
Percent Moisture	8.7		%	1.0	1.0	1.0

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Job Number: 360-24251-1
Sdg Number: OCRI-05

Client Sample ID: **OC-SB-440-6.0/8.0-XXX**
Lab Sample ID: **360-24251-10**

Date Sampled: 08/24/2009 1150
Date Received: 08/24/2009 1910
Client Matrix: Solid
Percent Solids: 90

Analyte	Result/Qualifier		Unit	RL	RL	Dilution
Method: MAVPH			Date Analyzed:		08/27/2009 0422	
Prep Method: 5035			Date Prepared:		08/25/2009 1447	
C5-C8 Aliphatics (unadjusted)	ND	J	mg/Kg	3.1	3.1	1.0
C5-C8 Aliphatics (adjusted)	ND	J	mg/Kg	3.1	3.1	1.0
C9-C10 Aromatics	ND	J	mg/Kg	3.1	3.1	1.0
C9-C12 Aliphatics (unadjusted)	ND	J	mg/Kg	3.1	3.1	1.0
C9-C12 Aliphatics (adjusted)	ND	J	mg/Kg	3.1	3.1	1.0
Total VPH	ND	J	mg/Kg	3.1	3.1	1.0
Surrogate					Acceptance Limits	
2,5-Dibromotoluene (fid)	56	X	%		70 - 130	
2,5-Dibromotoluene (pid)	60	X	%		70 - 130	
Method: MA-EPH			Date Analyzed:		09/01/2009 1749	
Prep Method: 3546			Date Prepared:		08/31/2009 1504	
C11-C22 Aromatics (unadjusted)	84		mg/Kg	18	18	5.0
C11-C22 Aromatics (Adjusted)	84		mg/Kg	18	18	5.0
C19-C36 Aliphatics	130		mg/Kg	18	18	5.0
C9-C18 Aliphatics	34		mg/Kg	18	18	5.0
Total EPH	250		mg/Kg	18	18	5.0
Surrogate					Acceptance Limits	
o-Terphenyl	64		%		40 - 140	
2-Fluorobiphenyl	88		%		40 - 140	
2-Bromonaphthalene	82		%		40 - 140	
1-Chlorooctadecane	50		%		40 - 140	
Method: Soluble-300.0			Date Analyzed:		09/03/2009 1523	
Sulfate	ND		mg/Kg	44	44	1.0
Chloride	ND		mg/Kg	22	22	1.0
Method: L107-06-1B			Date Analyzed:		09/03/2009 1352	
Prep Method: Distill/Ammonia			Date Prepared:		09/02/2009 1425	
Ammonia	19		mg/Kg	6.9	6.9	1.0
Method: Moisture			Date Analyzed:		08/26/2009 1223	
Percent Moisture	9.6		%	1.0	1.0	1.0

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Job Number: 360-24251-1
Sdg Number: OCRI-05

Client Sample ID: **OC-TBK-006**
Lab Sample ID: **360-24251-11**

Date Sampled: 08/24/2009 1430
Date Received: 08/24/2009 1910
Client Matrix: Solid

Analyte	Result/Qualifier		Unit	RL	RL	Dilution
Method: MAVPH			Date Analyzed:		08/27/2009 0455	
Prep Method: 5035			Date Prepared:		08/26/2009 1447	
C5-C8 Aliphatics (unadjusted)	ND		mg/Kg	2.5	2.5	1.0
C5-C8 Aliphatics (adjusted)	ND		mg/Kg	2.5	2.5	1.0
C9-C10 Aromatics	ND		mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (unadjusted)	ND		mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (adjusted)	ND		mg/Kg	2.5	2.5	1.0
Total VPH	ND		mg/Kg	2.5	2.5	1.0
Surrogate					Acceptance Limits	
2,5-Dibromotoluene (fid)	54	X	%		70 - 130	
2,5-Dibromotoluene (pid)	57	X	%		70 - 130	

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Job Number: 360-24251-1
Sdg Number: OCRI-05

Client Sample ID: **OC-SB-441-0.0/1.0-XXX**
Lab Sample ID: **360-24251-13**

Date Sampled: 08/24/2009 1450
Date Received: 08/25/2009 1800
Client Matrix: Solid
Percent Solids: 97

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		09/01/2009 2134	
Prep Method: 5035		Date Prepared:		08/31/2009 1641	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	2.6	2.6	1.0
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	2.6	2.6	1.0
C9-C10 Aromatics	ND	mg/Kg	2.6	2.6	1.0
C9-C12 Aliphatics (unadjusted)	ND	mg/Kg	2.6	2.6	1.0
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	2.6	2.6	1.0
Total VPH	ND	mg/Kg	2.6	2.6	1.0
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	87	%		70 - 130	
2,5-Dibromotoluene (pid)	90	%		70 - 130	
Method: MA-EPH		Date Analyzed:		09/01/2009 1814	
Prep Method: 3546		Date Prepared:		08/31/2009 1504	
C11-C22 Aromatics (unadjusted)	190	mg/Kg	3.4	3.4	1.0
C11-C22 Aromatics (Adjusted)	18	mg/Kg	3.4	3.4	1.0
C19-C36 Aliphatics	33	mg/Kg	3.4	3.4	1.0
C9-C18 Aliphatics	3.6	mg/Kg	3.4	3.4	1.0
Total EPH	55	mg/Kg	3.4	3.4	1.0
Surrogate				Acceptance Limits	
o-Terphenyl	82	%		40 - 140	
2-Fluorobiphenyl	85	%		40 - 140	
2-Bromonaphthalene	84	%		40 - 140	
1-Chlorooctadecane	73	%		40 - 140	
Method: Soluble-300.0		Date Analyzed:		09/03/2009 1554	
Sulfate	ND	mg/Kg	41	41	1.0
Chloride	ND	mg/Kg	21	21	1.0
Method: L107-06-1B		Date Analyzed:		09/03/2009 1354	
Prep Method: Distill/Ammonia		Date Prepared:		09/02/2009 1425	
Ammonia	20	mg/Kg	5.6	5.6	1.0
Method: Moisture		Date Analyzed:		08/26/2009 1223	
Percent Moisture	3.5	%	1.0	1.0	1.0

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Job Number: 360-24251-1
Sdg Number: OCRI-05

Client Sample ID: **OC-SB-441-17/19-XXX**
Lab Sample ID: **360-24251-14**

Date Sampled: 08/24/2009 1535
Date Received: 08/25/2009 1800
Client Matrix: Solid
Percent Solids: 93

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		09/01/2009 2207	
Prep Method: 5035		Date Prepared:		09/01/2009 1641	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	2.1	2.1	1.0
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	2.1	2.1	1.0
C9-C10 Aromatics	ND	mg/Kg	2.1	2.1	1.0
C9-C12 Aliphatics (unadjusted)	ND	mg/Kg	2.1	2.1	1.0
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	2.1	2.1	1.0
Total VPH	ND	mg/Kg	2.1	2.1	1.0
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	91	%		70 - 130	
2,5-Dibromotoluene (pid)	92	%		70 - 130	
Method: MA-EPH		Date Analyzed:		09/01/2009 1839	
Prep Method: 3546		Date Prepared:		08/31/2009 1504	
C11-C22 Aromatics (unadjusted)	4.7	mg/Kg	3.4	3.4	1.0
C11-C22 Aromatics (Adjusted)	4.7	mg/Kg	3.4	3.4	1.0
C19-C36 Aliphatics	ND	mg/Kg	3.4	3.4	1.0
C9-C18 Aliphatics	ND	mg/Kg	3.4	3.4	1.0
Total EPH	4.7	mg/Kg	3.4	3.4	1.0
Surrogate				Acceptance Limits	
o-Terphenyl	89	%		40 - 140	
2-Fluorobiphenyl	90	%		40 - 140	
2-Bromonaphthalene	88	%		40 - 140	
1-Chlorooctadecane	64	%		40 - 140	
Method: Soluble-300.0		Date Analyzed:		09/03/2009 1609	
Sulfate	ND	mg/Kg	44	44	1.0
Chloride	ND	mg/Kg	22	22	1.0
Method: L107-06-1B		Date Analyzed:		09/03/2009 1355	
Prep Method: Distill/Ammonia		Date Prepared:		09/02/2009 1425	
Ammonia	87	mg/Kg	5.6	5.6	1.0
Method: Moisture		Date Analyzed:		08/26/2009 1223	
Percent Moisture	6.8	%	1.0	1.0	1.0

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Job Number: 360-24251-1
Sdg Number: OCRI-05

Client Sample ID: **OC-SB-441-8.0/10-XXX**
Lab Sample ID: **360-24251-15**

Date Sampled: 08/24/2009 1455
Date Received: 08/25/2009 1800
Client Matrix: Solid
Percent Solids: 89

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		09/01/2009 2240	
Prep Method: 5035		Date Prepared:		08/27/2009 1641	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	2.6	2.6	1.0
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	2.6	2.6	1.0
C9-C10 Aromatics	ND	mg/Kg	2.6	2.6	1.0
C9-C12 Aliphatics (unadjusted)	ND	mg/Kg	2.6	2.6	1.0
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	2.6	2.6	1.0
Total VPH	ND	mg/Kg	2.6	2.6	1.0
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	91	%		70 - 130	
2,5-Dibromotoluene (pid)	93	%		70 - 130	
Method: MA-EPH		Date Analyzed:		09/01/2009 1904	
Prep Method: 3546		Date Prepared:		08/31/2009 1504	
C11-C22 Aromatics (unadjusted)	ND	mg/Kg	3.7	3.7	1.0
C11-C22 Aromatics (Adjusted)	ND	mg/Kg	3.7	3.7	1.0
C19-C36 Aliphatics	ND	mg/Kg	3.7	3.7	1.0
C9-C18 Aliphatics	ND	mg/Kg	3.7	3.7	1.0
Total EPH	ND	mg/Kg	3.7	3.7	1.0
Surrogate				Acceptance Limits	
o-Terphenyl	75	%		40 - 140	
2-Fluorobiphenyl	87	%		40 - 140	
2-Bromonaphthalene	83	%		40 - 140	
1-Chlorooctadecane	55	%		40 - 140	
Method: Soluble-300.0		Date Analyzed:		09/03/2009 1624	
Sulfate	ND	mg/Kg	45	45	1.0
Chloride	ND	mg/Kg	23	23	1.0
Method: L107-06-1B		Date Analyzed:		09/03/2009 1356	
Prep Method: Distill/Ammonia		Date Prepared:		09/02/2009 1425	
Ammonia	ND	mg/Kg	6.9	6.9	1.0
Method: Moisture		Date Analyzed:		08/26/2009 1223	
Percent Moisture	11	%	1.0	1.0	1.0

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Job Number: 360-24251-1
Sdg Number: OCRI-05

Client Sample ID: **OC-TBK-007**
Lab Sample ID: **360-24251-25**

Date Sampled: 08/25/2009 1450
Date Received: 08/25/2009 1800
Client Matrix: Solid

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		09/01/2009 2028	
Prep Method: 5035		Date Prepared:		08/31/2009 1641	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	2.5	2.5	1.0
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	2.5	2.5	1.0
C9-C10 Aromatics	ND	mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (unadjusted)	ND	mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	2.5	2.5	1.0
Total VPH	ND	mg/Kg	2.5	2.5	1.0
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	93	%		70 - 130	
2,5-Dibromotoluene (pid)	94	%		70 - 130	

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Job Number: 360-24251-1
Sdg Number: OCRI-05

Client Sample ID: **OC-EBK-004**
Lab Sample ID: **360-24251-26**

Date Sampled: 08/24/2009 1820
Date Received: 08/25/2009 1800
Client Matrix: Water

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		09/02/2009 1731	
Prep Method: 5030B		Date Prepared:		09/02/2009 1731	
C5-C8 Aliphatics (unadjusted)	ND	ug/L	50	50	1.0
C5-C8 Aliphatics (adjusted)	ND	ug/L	50	50	1.0
C9-C10 Aromatics	ND	ug/L	50	50	1.0
C9-C12 Aliphatics (unadjusted)	ND	ug/L	50	50	1.0
C9-C12 Aliphatics (adjusted)	ND	ug/L	50	50	1.0
Total VPH	ND	ug/L	50	50	1.0
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	97	%		70 - 130	
2,5-Dibromotoluene (pid)	98	%		70 - 130	
Method: MA-EPH		Date Analyzed:		08/28/2009 1519	
Prep Method: 3510C		Date Prepared:		08/27/2009 1149	
C11-C22 Aromatics (unadjusted)	ND	ug/L	100	100	1.0
C11-C22 Aromatics (Adjusted)	ND	ug/L	100	100	1.0
C19-C36 Aliphatics	ND	ug/L	100	100	1.0
C9-C18 Aliphatics	ND	ug/L	100	100	1.0
Total EPH	ND	ug/L	100	100	1.0
Surrogate				Acceptance Limits	
o-Terphenyl	93	%		40 - 140	
2-Fluorobiphenyl	93	%		40 - 140	
2-Bromonaphthalene	86	%		40 - 140	
1-Chlorooctadecane	56	%		40 - 140	
Method: 300.0		Date Analyzed:		08/28/2009 2327	
Sulfate	21	mg/L	2.0	2.0	1.0
Chloride	ND	mg/L	1.0	1.0	1.0
Method: L107-06-1B		Date Analyzed:		09/03/2009 1408	
Prep Method: Distill/Ammonia		Date Prepared:		09/03/2009 1148	
Ammonia	ND	mg/L	0.10	0.10	1.0

ICAL: Quadratic regression was used for Benzyl alcohol, Benzoic acid, 4-Chloroaniline, 2,4-Dinitrophenol, 4,6-Dinitro-2-methylphenol and Aniline.

No other difficulties were encountered during the semivolatiles analysis.

All other quality control parameters were within the acceptance limits.

EXTRACTABLE PETROLEUM HYDROCARBONS (soils)

Samples 360-24251-8 through 360-24251-10 and 360-24251-13 through 360-24251-15 were analyzed for Extractable Petroleum Hydrocarbons in accordance with MADEP EPH. The samples were prepared on 08/31/2009 and analyzed on 09/01/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved.

General method information:
According to EPH method reference 11.2.6.2, using GC/MS, the laboratory has identified a single component contaminant that appears at the same retention time in all laboratory and field samples. This contaminant is derived from the method's SPE cartridge and is not included in the calculation of the C11-C22 Aromatics range.

The LCS/LCSD target and ranges recovered within MCP control criteria. While n-nonanerecovered low in the LCSD (26%), the cumulative recovery of C9-C18 aliphatic compounds recovered within acceptable limits. In TestAmerica Westfield's experience, the n-nonane control limits should be considered advisory for this method.

Sample 360-24251-10(5X) required dilution prior to analysis due to sample matrix - black viscous extract. The reporting limits have been adjusted accordingly.

At the request of the client, only the carbon ranges are reported for this job.

No other difficulties were encountered during the EPH analyses.

All other quality control parameters were within the acceptance limits.

EXTRACTABLE PETROLEUM HYDROCARBONS (water)

Sample 360-24251-26 was analyzed for Extractable Petroleum Hydrocarbons in accordance with MADEP EPH. The samples were prepared on 08/27/2009 and analyzed on 08/28/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved.

General method information:
According to EPH method reference 11.2.6.2, using GC/MS, the laboratory has identified a single component contaminant that appears at the same retention time in all laboratory and field samples. This contaminant is derived from the method's SPE cartridge and is not included in the calculation of the C11-C22 Aromatics range.

At the request of the client, only the carbon ranges are reported for this job.

No difficulties were encountered during the EPH analysis.

All quality control parameters were within the acceptance limits.

VOLATILE PETROLEUM HYDROCARBONS (soils)

Samples 360-24251-8 through 360-24251-11, 360-24251-13 through 360-24251-15 and 360-24251-25 were analyzed for Volatile Petroleum Hydrocarbons in accordance with MADEP VPH. The samples were prepared on 08/25/2009, 08/26/2009, 08/27/2009, 08/31/2009 and 09/01/2009 and analyzed on 08/27/2009 and 09/01/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved with the exception of:

2,5-Dibromotoluene (fid) and 2,5-Dibromotoluene (pid) failed the surrogate recovery criteria low for samples 360-24251-[8,9,10,11]. The closing CCV also had failing low surrogate for this batch of samples (B48220). The data is reported after consultation with the client.

Refer to the QC report for details.

General method information:
At the request of the client, only the carbon ranges are reported for this job.

No other difficulties were encountered during the VPH analyses.

All other quality control parameters were within the acceptance limits.

VOLATILE PETROLEUM HYDROCARBONS (water)
Sample 360-24251-26 was analyzed for Volatile Petroleum Hydrocarbons in accordance with MADEP VPH. The samples were analyzed on 09/02/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved.

General method information:
At the request of the client, only the carbon ranges are reported for this job.

No difficulties were encountered during the VPH analysis.

All quality control parameters were within the acceptance limits.

TOTAL METALS (soils)
Samples 360-24251-1, 360-24251-3 through 360-24251-5, 360-24251-7, 360-24251-8, 360-24251-10, 360-24251-12, 360-24251-13, 360-24251-15, 360-24251-16 and 360-24251-18 through 360-24251-23 were analyzed for total metals in accordance with EPA SW846 Method 6010B. The samples were prepared on 08/27/2009, 09/03/2009 and 09/04/2009 and analyzed on 08/27/2009, 08/31/2009, 09/03/2009 and 09/08/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved with the exception of:

Calcium was detected in method blank MB 360-48542/1-A at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged. This MB is associated with sample 360-24251-21.

Potassium failed the LCSD recovery criteria low (78%) for LCSD 360-48244/3-A. The LCS was within control limits as was the rpd between the two standards.

Aluminum and Iron failed the MS recovery criteria high for the matrix spike of sample 360-24251-19. Antimony and Iron failed the MS recovery criteria low for the matrix spike of sample 360-24251-4. Aluminum failed the MS recovery criteria high. The associated laboratory control sample (LCS) met acceptance criteria.

Batch 48706 (re-analysis for Potassium only on sample 360-24251-21): The ICSA for batch 48706 exceeded the acceptance limits high for element: Aluminum (124%). Potassium was not detected above the reporting limit in this standard. The ICSAB recovered within limits.

Refer to the QC report for details.

General method information:
Samples 360-24251-5(5X) and 360-24251-22(5X) required dilution prior to analysis due to the abundance of the target analyte Tin. The reporting limits have been adjusted accordingly.

At the request of the client, a modified MCP analyte list (TAL metals) was reported for this job.

Several analytes were detected in method blank MB 360-48244/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

Iron, Magnesium and Tin were detected in method blank MB 360-48542/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged "J". If the associated

Client: Olin Corporation

Job Number: 360-24251-1
Sdg Number: OCRI-05

Surrogate Recovery Report

MAVPH Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	25DBT2 %Rec	25DBT1 %Rec
360-24251-8	OC-SB-440-0.0/1.0-XXX	58X	62X
360-24251-9	OC-SB-440-23/25-XXX	57X	60X
360-24251-10	OC-SB-440-6.0/8.0-XXX	56X	60X
360-24251-11	OC-TBK-006	54X	57X TO NO QUALS
360-24251-13	OC-SB-441-0.0/1.0-XXX	87	90
360-24251-14	OC-SB-441-17/19-XXX	91	92
360-24251-15	OC-SB-441-8.0/10-XXX	91	93
360-24251-25	OC-TBK-007	93	94
MB 360-48216/3-A		100	99
MB 360-48474/3-A		93	93
LCS 360-48216/1-A		102	89
LCS 360-48474/1-A		90	77
LCSD 360-48216/2-A		102	87
LCSD 360-48474/2-A		91	77

Surrogate	Acceptance Limits
25DBT = 2,5-Dibromotoluene (fid)	70-130
25DBT = 2,5-Dibromotoluene (pid)	70-130

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Job Number: 360-24309-1
Sdg Number: OCRI-06

Client Sample ID: **OC-SB-400-0.0/1.0-XXX**
Lab Sample ID: **360-24309-1**

Date Sampled: 08/26/2009 1325
Date Received: 08/26/2009 1735
Client Matrix: Solid
Percent Solids: 97

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		09/01/2009 2313	
Prep Method: 5035		Date Prepared:		09/01/2009 1641	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	2.7	2.7	1.0
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	2.7	2.7	1.0
C9-C10 Aromatics	ND	mg/Kg	2.7	2.7	1.0
C9-C12 Aliphatics (unadjusted)	ND	mg/Kg	2.7	2.7	1.0
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	2.7	2.7	1.0
Total VPH	ND	mg/Kg	2.7	2.7	1.0
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	92	%		70 - 130	
2,5-Dibromotoluene (pid)	95	%		70 - 130	
Method: MA-EPH		Date Analyzed:		09/03/2009 1813	
Prep Method: 3546		Date Prepared:		09/03/2009 1138	
C11-C22 Aromatics (unadjusted)	4.5	mg/Kg	3.3	3.3	1.0
C11-C22 Aromatics (Adjusted)	4.5	mg/Kg	3.3	3.3	1.0
C19-C36 Aliphatics	3.6	mg/Kg	3.3	3.3	1.0
C9-C18 Aliphatics	ND	mg/Kg	3.3	3.3	1.0
Total EPH	8.1	mg/Kg	3.3	3.3	1.0
Surrogate				Acceptance Limits	
o-Terphenyl	81	%		40 - 140	
2-Fluorobiphenyl	92	%		40 - 140	
2-Bromonaphthalene	84	%		40 - 140	
1-Chlorooctadecane	64	%		40 - 140	
Method: Soluble-300.0		Date Analyzed:		09/04/2009 1259	
Sulfate	ND	mg/Kg	41	41	1.0
Chloride	ND	mg/Kg	21	21	1.0
Method: L107-06-1B		Date Analyzed:		09/03/2009 1419	
Prep Method: Distill/Ammonia		Date Prepared:		09/03/2009 1148	
Ammonia	ND	mg/Kg	5.7	5.7	1.0
Method: Moisture		Date Analyzed:		08/28/2009 1305	
Percent Moisture	3.1	%	1.0	1.0	1.0

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Job Number: 360-24309-1
Sdg Number: OCRI-06

Client Sample ID: **OC-SB-400-5.0/7.0-XXX**
Lab Sample ID: **360-24309-2**

Date Sampled: 08/26/2009 1330
Date Received: 08/26/2009 1735
Client Matrix: Solid
Percent Solids: 93

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		09/01/2009 2346	
Prep Method: 5035		Date Prepared:		08/27/2009 1641	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	2.5	2.5	1.0
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	2.5	2.5	1.0
C9-C10 Aromatics	ND	mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (unadjusted)	ND	mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	2.5	2.5	1.0
Total VPH	ND	mg/Kg	2.5	2.5	1.0
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	90	%		70 - 130	
2,5-Dibromotoluene (pid)	93	%		70 - 130	
Method: MA-EPH		Date Analyzed:		09/03/2009 1839	
Prep Method: 3546		Date Prepared:		09/03/2009 1138	
C11-C22 Aromatics (unadjusted)	ND	mg/Kg	3.5	3.5	1.0
C11-C22 Aromatics (Adjusted)	ND	mg/Kg	3.5	3.5	1.0
C19-C36 Aliphatics	ND	mg/Kg	3.5	3.5	1.0
C9-C18 Aliphatics	ND	mg/Kg	3.5	3.5	1.0
Total EPH	ND	mg/Kg	3.5	3.5	1.0
Surrogate				Acceptance Limits	
o-Terphenyl	68	%		40 - 140	
2-Fluorobiphenyl	94	%		40 - 140	
2-Bromonaphthalene	87	%		40 - 140	
1-Chlorooctadecane	56	%		40 - 140	
Method: Soluble-300.0		Date Analyzed:		09/04/2009 1344	
Sulfate	ND	mg/Kg	43	43	1.0
Chloride	ND	mg/Kg	21	21	1.0
Method: L107-06-1B		Date Analyzed:		09/03/2009 1420	
Prep Method: Distill/Ammonia		Date Prepared:		09/03/2009 1148	
Ammonia	ND	mg/Kg	6.7	6.7	1.0
Method: Moisture		Date Analyzed:		08/28/2009 1305	
Percent Moisture	6.7	%	1.0	1.0	1.0

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Job Number: 360-24309-1
Sdg Number: OCRI-06

Client Sample ID: **OC-TBK-008**
Lab Sample ID: **360-24309-24**

Date Sampled: 08/26/2009 1500
Date Received: 08/26/2009 1735
Client Matrix: Solid

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		09/01/2009 2101	
Prep Method: 5035		Date Prepared:		09/01/2009 1641	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	2.5	2.5	1.0
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	2.5	2.5	1.0
C9-C10 Aromatics	ND	mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (unadjusted)	ND	mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	2.5	2.5	1.0
Total VPH	ND	mg/Kg	2.5	2.5	1.0
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	91	%		70 - 130	
2,5-Dibromotoluene (pid)	93	%		70 - 130	

NDPA. Results in batch 49141 for NDPA are the calculated difference between the primary run and the florisil fraction results for DPA (batch 49059).

For samples 360-24309-12,14,15,17,19,20,22,23,23MS/MSD, batch 49098.ICAL 9/17/2009 Inst B used quadratic regression for Benzoic acid, 2,4-Dinitrophenol, 4,6-Dinitro-2-methylphenol, and Pentachlorophenol.

No other difficulties were encountered during the semivolatiles analyses.

All other quality control parameters were within the acceptance limits.

EXTRACTABLE PETROLEUM HYDROCARBONS

Samples 360-24309-1 and 360-24309-2 were analyzed for Extractable Petroleum Hydrocarbons in accordance with MADEP EPH. The samples were prepared and analyzed on 09/03/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved.

General method information:
According to EPH method reference 11.2.6.2, using GC/MS, the laboratory has identified a single component contaminant that appears at the same retention time in all laboratory and field samples. This contaminant is derived from the method's SPE cartridge and is not included in the calculation of the C11-C22 Aromatics range.

The LCS/LCSD target and ranges recovered within MCP control criteria. While n-nonanerecovered low in the LCS (28%), the cumulative recovery of C9-C18 aliphatic compounds recovered within acceptable limits. In TestAmerica Westfield's experience, the n-nonane control limits should be considered advisory for this method.

At the request of the client, only the carbon ranges are reported for this job.

No other difficulties were encountered during the EPH analyses.

All other quality control parameters were within the acceptance limits.

VOLATILE PETROLEUM HYDROCARBONS

Samples 360-24309-1, 360-24309-2 and 360-24309-24 were analyzed for Volatile Petroleum Hydrocarbons in accordance with MADEP VPH. The samples were prepared on 08/27/2009 and 09/01/2009 and analyzed on 09/01/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved.

General method information:
At the request of the client, only the carbon ranges are reported for this job.

No difficulties were encountered during the VPH analyses.

All quality control parameters were within the acceptance limits.

TOTAL METALS

Samples 360-24309-1 through 360-24309-7, 360-24309-9 through 360-24309-12, 360-24309-14, 360-24309-15, 360-24309-17, 360-24309-19, 360-24309-20, 360-24309-22 and 360-24309-23 were analyzed for total metals in accordance with EPA SW-846 Method 6010B. The samples were prepared and analyzed on 08/28/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved with the exception of:

Antimony failed the LCSD recovery criteria low (79%) for LCSD 360-48302/3-A. The LCS and the rpd between the LCS/LCSD were within control.

Aluminum, Antimony, Chromium, Iron and Magnesium failed the MS recovery criteria low for the matrix spike of sample 360-24309-23.

Copper exceeded the duplicate rpd limit for the sample/duplicate sample 360-24309-23.

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Job Number: 360-24365-1
Sdg Number: OCRI-09

Client Sample ID: **OC-SB-447-0.0/1.0-XXX**
Lab Sample ID: **360-24365-5**

Date Sampled: 08/31/2009 0810
Date Received: 08/31/2009 1745
Client Matrix: Solid
Percent Solids: 86

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		09/12/2009 1637	
Prep Method: 5035		Date Prepared:		09/12/2009 1256	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	3.6	3.6	1.0
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	3.6	3.6	1.0
C9-C10 Aromatics	ND	mg/Kg	3.6	3.6	1.0
C9-C12 Aliphatics (unadjusted)	ND	mg/Kg	3.6	3.6	1.0
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	3.6	3.6	1.0
Total VPH	ND	mg/Kg	3.6	3.6	1.0
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	88	%		70 - 130	
2,5-Dibromotoluene (pid)	92	%		70 - 130	
Method: MA-EPH		Date Analyzed:		09/03/2009 1954	
Prep Method: 3546		Date Prepared:		09/03/2009 1138	
C11-C22 Aromatics (unadjusted)	460	mg/Kg	38	38	10
C11-C22 Aromatics (Adjusted)	190	mg/Kg	38	38	10
C19-C36 Aliphatics	68	mg/Kg	38	38	10
C9-C18 Aliphatics	ND	mg/Kg	38	38	10
Total EPH	250	mg/Kg	38	38	10
Surrogate				Acceptance Limits	
o-Terphenyl	51	%		40 - 140	
2-Fluorobiphenyl	94	%		40 - 140	
2-Bromonaphthalene	87	%		40 - 140	
1-Chlorooctadecane	43	%		40 - 140	
Method: Soluble-300.0		Date Analyzed:		09/11/2009 0029	
Sulfate	ND	mg/Kg	45	45	1.0
Chloride	ND	mg/Kg	23	23	1.0
Method: L107-06-1B		Date Analyzed:		09/11/2009 1446	
Prep Method: Distill/Ammonia		Date Prepared:		09/11/2009 1115	
Ammonia	80	mg/Kg	7.9	7.9	1.0
Method: Lloyd Kahn		Date Analyzed:		09/01/2009 1332	
Total Organic Carbon	29000	mg/Kg	1000	1000	1.0
Method: Moisture		Date Analyzed:		09/02/2009 1331	
Percent Moisture	14	%	1.0	1.0	1.0

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Job Number: 360-24365-1
Sdg Number: OCRI-09

Client Sample ID: OC-SB-447-18/20-XXX
Lab Sample ID: 360-24365-6

Date Sampled: 08/31/2009 0905
Date Received: 08/31/2009 1745
Client Matrix: Solid
Percent Solids: 91

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		09/12/2009 1710	
Prep Method: 5035		Date Prepared:		09/12/2009 1256	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	2.6	2.6	1.0
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	2.6	2.6	1.0
C9-C10 Aromatics	ND	mg/Kg	2.6	2.6	1.0
C9-C12 Aliphatics (unadjusted)	ND	mg/Kg	2.6	2.6	1.0
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	2.6	2.6	1.0
Total VPH	ND	mg/Kg	2.6	2.6	1.0
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	88	%		70 - 130	
2,5-Dibromotoluene (pid)	92	%		70 - 130	
Method: MA-EPH		Date Analyzed:		09/03/2009 1903	
Prep Method: 3546		Date Prepared:		09/03/2009 1138	
C11-C22 Aromatics (unadjusted)	ND	mg/Kg	3.6	3.6	1.0
C11-C22 Aromatics (Adjusted)	ND	mg/Kg	3.6	3.6	1.0
C19-C36 Aliphatics	ND	mg/Kg	3.6	3.6	1.0
C9-C18 Aliphatics	ND	mg/Kg	3.6	3.6	1.0
Total EPH	ND	mg/Kg	3.6	3.6	1.0
Surrogate				Acceptance Limits	
o-Terphenyl	77	%		40 - 140	
2-Fluorobiphenyl	86	%		40 - 140	
2-Bromonaphthalene	79	%		40 - 140	
1-Chlorooctadecane	62	%		40 - 140	
Method: Soluble-300.0		Date Analyzed:		09/11/2009 0044	
Sulfate	ND	mg/Kg	44	44	1.0
Chloride	ND	mg/Kg	22	22	1.0
Method: L107-06-1B		Date Analyzed:		09/11/2009 1447	
Prep Method: Distill/Ammonia		Date Prepared:		09/11/2009 1115	
Ammonia	210	mg/Kg	7.7	7.7	1.0
Method: Lloyd Kahn		Date Analyzed:		09/01/2009 1332	
Total Organic Carbon	ND	mg/Kg	1000	1000	1.0
Method: Moisture		Date Analyzed:		09/02/2009 1331	
Percent Moisture	9.4	%	1.0	1.0	1.0

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Job Number: 360-24365-1
Sdg Number: OCRI-09

Client Sample ID: **OC-SB-447-3.0/5.0-XXX**
Lab Sample ID: **360-24365-7**

Date Sampled: 08/31/2009 0825
Date Received: 08/31/2009 1745
Client Matrix: Solid
Percent Solids: 89

Analyte	Result/Qualifier		Unit	RL	RL	Dilution
Method: MAVPH			Date Analyzed:		09/12/2009 1743	
Prep Method: 5035			Date Prepared:		09/12/2009 1256	
C5-C8 Aliphatics (unadjusted)	ND		mg/Kg	19	19	5.0
C5-C8 Aliphatics (adjusted)	ND		mg/Kg	19	19	5.0
C9-C10 Aromatics	ND		mg/Kg	19	19	5.0
C9-C12 Aliphatics (unadjusted)	ND		mg/Kg	19	19	5.0
C9-C12 Aliphatics (adjusted)	ND		mg/Kg	19	19	5.0
Total VPH	ND		mg/Kg	19	19	5.0
Surrogate					Acceptance Limits	
2,5-Dibromotoluene (fid)	89		%		70 - 130	
2,5-Dibromotoluene (pid)	92		%		70 - 130	
Method: MA-EPH			Date Analyzed:		09/04/2009 1055	
Prep Method: 3546			Date Prepared:		09/03/2009 1138	
C11-C22 Aromatics (unadjusted)	2400		mg/Kg	36	36	10
C11-C22 Aromatics (Adjusted)	360		mg/Kg	36	36	10
C19-C36 Aliphatics	ND		mg/Kg	36	36	10
C9-C18 Aliphatics	ND		mg/Kg	36	36	10
Total EPH	360		mg/Kg	36	36	10
Surrogate					Acceptance Limits	
o-Terphenyl	24	X	%		40 - 140	
2-Fluorobiphenyl	91		%		40 - 140	
2-Bromonaphthalene	85		%		40 - 140	
1-Chlorooctadecane	22	X	%		40 - 140	
Method: Soluble-300.0			Date Analyzed:		09/11/2009 0059	
Sulfate	ND		mg/Kg	44	44	1.0
Chloride	ND		mg/Kg	22	22	1.0
Method: L107-06-1B			Date Analyzed:		09/15/2009 0921	
Prep Method: Distill/Ammonia			Date Prepared:		09/14/2009 1126	
Ammonia	14		mg/Kg	7.3	7.3	1.0
Method: Lloyd Kahn			Date Analyzed:		09/01/2009 1332	
Total Organic Carbon	42000		mg/Kg	1000	1000	1.0
Method: Moisture			Date Analyzed:		09/02/2009 1331	
Percent Moisture	11		%	1.0	1.0	1.0

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Job Number: 360-24365-1
Sdg Number: OCRI-09

Client Sample ID: **OC-TBK-011**
Lab Sample ID: **360-24365-11**

Date Sampled: 08/31/2009 1420
Date Received: 08/31/2009 1745
Client Matrix: Solid

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		09/12/2009 1817	
Prep Method: 5035		Date Prepared:		09/12/2009 1256	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	2.5	2.5	1.0
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	2.5	2.5	1.0
C9-C10 Aromatics	ND	mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (unadjusted)	ND	mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	2.5	2.5	1.0
Total VPH	ND	mg/Kg	2.5	2.5	1.0
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	89	%		70 - 130	
2,5-Dibromotoluene (pid)	92	%		70 - 130	

24365

General method information:
ICAL: Quadratic regression was used for 1,4-Dioxane, Benzyl alcohol, Benzoic acid, 4-Chloroaniline, 2,4-Dinitrophenol, 4,6-Dinitro-2-methylphenol and Aniline for 9/14/2009 calibration for instrument B.

No other difficulties were encountered during the semivolatiles analysis.

All other quality control parameters were within the acceptance limits.

EXTRACTABLE PETROLEUM HYDROCARBONS (soils)
Samples 360-24365-5 through 360-24365-7 were analyzed for Extractable Petroleum Hydrocarbons in accordance with MADEP EPH. The samples were prepared on 09/03/2009 and analyzed on 09/03/2009 and 09/04/2009.

All QC performance standards identified in the project QAPP, which may affect Data Usability for this specific method, were achieved with the exception of:

1-Chlorooctadecane and o-Terphenyl failed the surrogate recovery criteria low for 360-24365-7. The sample was re-extracted within hold time with similar results; original results were reported.

General method information:

At the request of the client, only the carbon ranges are reported for this job.

Samples 360-24365-5(10X - targets) and 360-24365-7(10X - failing surrogates/high targets) required dilution prior to analysis. The reporting limits have been adjusted accordingly.

According to EPH method reference 11.2.6.2, using GC/MS, the laboratory has identified a single component contaminant that appears at the same retention time in all laboratory and field samples. This contaminant is derived from the method's SPE cartridge and is not included in the calculation of the C11-C22 Aromatics range.

The LCS/LCSD target and ranges recovered within MCP control criteria. While n-nonane recovered low in the LCS (28%), the cumulative recovery of C9-C18 aliphatic compounds recovered within acceptable limits. In TestAmerica Westfield's experience, the n-nonane control limits should be considered advisory for this method.

No other difficulties were encountered during the EPH analyses.

All other quality control parameters were within the acceptance limits.

VOLATILE PETROLEUM HYDROCARBONS (soils)
Samples 360-24365-5 through 360-24365-7 and 360-24365-11 were analyzed for Volatile Petroleum Hydrocarbons in accordance with MADEP VPH. The samples were prepared and analyzed on 09/12/2009.

All QC performance standards identified in the project QAPP, which may affect Data Usability for this specific method, were achieved.

General method information:
Sample 360-24365-7(5X) required dilution prior to analysis due to a solid precipitate forming, when methanol extract was added to water. The reporting limits have been adjusted accordingly.

At the request of the client, only the carbon ranges are reported for this job.

No difficulties were encountered during the VPH analyses.

All quality control parameters were within the acceptance limits.

POLYCHLORINATED BIPHENYLS (PCBS) (soil)
Sample 360-24365-21 was analyzed for polychlorinated biphenyls (PCBs) in accordance with SW846 8082. The samples were prepared on 09/03/2009 and analyzed on 09/04/2009.

All QC performance standards identified in the project QAPP, which may affect Data Usability for this specific method, were achieved.

No difficulties were encountered during the PCB 8082 analysis.

All quality control parameters were within the acceptance limits.

POLYCHLORINATED BIPHENYLS (PCBS) (water)
Sample 360-24365-12 was analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA SW-846 Method 8082. The samples were prepared on 09/03/09 and analyzed on 09/04/09.

All QC performance standards identified in the project QAPP, which may affect Data Usability for this specific method, were achieved.

Client: Olin Corporation

Job Number: 360-24365-1
Sdg Number: OCRI-09

Surrogate Recovery Report

MA-EPH Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	OTPH1 %Rec	FBP1 %Rec	2BN1 %Rec	1COD2 %Rec
360-24365-5	OC-SB-447-0.0/1.0-XXX	51	94	87	43
360-24365-6	OC-SB-447-18/20-XXX	77	86	79	62
360-24365-7	OC-SB-447-3.0/5.0-XXX	24X	91	85	22X
MB 360-48550/1-A		77	83	77	64
LCS 360-48550/2-A		78	89	82	63
LCSD 360-48550/3-A		79	91	84	68

10X DILUTION

NO QUALS

Surrogate	Acceptance Limits
OTPH = o-Terphenyl	40-140
FBP = 2-Fluorobiphenyl	40-140
2BN = 2-Bromonaphthalene	40-140
1COD = 1-Chlorooctadecane	40-140

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Job Number: 360-24444-1
Sdg Number: OCRI-11

Client Sample ID: **OC-SB-459-6.0/8.0-DUP**
Lab Sample ID: **360-24444-1**

Date Sampled: 09/03/2009 1130
Date Received: 09/03/2009 1650
Client Matrix: Solid
Percent Solids: 87

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		09/15/2009 2249	
Prep Method: 5035		Date Prepared:		09/08/2009 1615	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	13	13	5.0
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	13	13	5.0
C9-C10 Aromatics	120	mg/Kg	13	13	5.0
C9-C12 Aliphatics (unadjusted)	110	mg/Kg	13	13	5.0
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	13	13	5.0
Total VPH	120	mg/Kg	13	13	5.0
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	92	%		70 - 130	
2,5-Dibromotoluene (pid)	84	%		70 - 130	
Method: MA-EPH		Date Analyzed:		09/11/2009 1352	
Prep Method: 3546		Date Prepared:		09/10/2009 1619	
C11-C22 Aromatics (unadjusted)	1100	mg/Kg	38	38	10
C11-C22 Aromatics (Adjusted)	590	mg/Kg	38	38	10
C19-C36 Aliphatics	700	mg/Kg	38	38	10
C9-C18 Aliphatics	290	mg/Kg	38	38	10
Total EPH	1600	mg/Kg	38	38	10
Surrogate				Acceptance Limits	
o-Terphenyl	66	%		40 - 140	
2-Fluorobiphenyl	97	%		40 - 140	
2-Bromonaphthalene	93	%		40 - 140	
1-Chlorooctadecane	61	%		40 - 140	
Method: Soluble-300.0		Date Analyzed:		09/16/2009 1957	
Sulfate	ND	mg/Kg	31	31	1.0
Chloride	ND	mg/Kg	15	15	1.0
Method: L107-06-1B		Date Analyzed:		09/16/2009 1425	
Prep Method: Distill/Ammonia		Date Prepared:		09/16/2009 1240	
Ammonia	21	mg/Kg	7.6	7.6	1.0
Method: Lloyd Kahn		Date Analyzed:		09/08/2009 1445	
Total Organic Carbon	7500	mg/Kg	1000	1000	1.0
Method: Moisture		Date Analyzed:		09/08/2009 1303	
Percent Moisture	13	%	1.0	1.0	1.0

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Job Number: 360-24444-1
Sdg Number: OCRI-11

Client Sample ID: **OC-SB-459-6.0/8.0-XXX**
Lab Sample ID: **360-24444-2**

Date Sampled: 09/03/2009 1130
Date Received: 09/03/2009 1650
Client Matrix: Solid
Percent Solids: 87

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		09/15/2009 2322	
Prep Method: 5035		Date Prepared:		09/09/2009 1615	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	14	14	5.0
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	14	14	5.0
C9-C10 Aromatics	110	mg/Kg	14	14	5.0
C9-C12 Aliphatics (unadjusted)	100	mg/Kg	14	14	5.0
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	14	14	5.0
Total VPH	110	mg/Kg	14	14	5.0
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	90	%		70 - 130	
2,5-Dibromotoluene (pid)	79	%		70 - 130	
Method: MA-EPH		Date Analyzed:		09/11/2009 1417	
Prep Method: 3546		Date Prepared:		09/10/2009 1619	
C11-C22 Aromatics (unadjusted)	1300	mg/Kg	37	37	10
C11-C22 Aromatics (Adjusted)	670	mg/Kg	37	37	10
C19-C36 Aliphatics	730	mg/Kg	37	37	10
C9-C18 Aliphatics	300	mg/Kg	37	37	10
Total EPH	1700	mg/Kg	37	37	10
Surrogate				Acceptance Limits	
o-Terphenyl	70	%		40 - 140	
2-Fluorobiphenyl	104	%		40 - 140	
2-Bromonaphthalene	99	%		40 - 140	
1-Chlorooctadecane	61	%		40 - 140	
Method: Soluble-300.0		Date Analyzed:		09/16/2009 2012	
Sulfate	ND	mg/Kg	42	42	1.0
Chloride	ND	mg/Kg	21	21	1.0
Method: L107-06-1B		Date Analyzed:		09/16/2009 1426	
Prep Method: Distill/Ammonia		Date Prepared:		09/16/2009 1240	
Ammonia	18	mg/Kg	8.0	8.0	1.0
Method: Lloyd Kahn		Date Analyzed:		09/08/2009 1510	
Total Organic Carbon	5400	mg/Kg	1000	1000	1.0
Method: Moisture		Date Analyzed:		09/08/2009 1303	
Percent Moisture	13	%	1.0	1.0	1.0

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Job Number: 360-24444-1
Sdg Number: OCRI-11

Client Sample ID: **OC-TBK-013**
Lab Sample ID: **360-24444-10**

Date Sampled: 09/03/2009 1400
Date Received: 09/03/2009 1650
Client Matrix: Solid

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		09/15/2009 2142	
Prep Method: 5035		Date Prepared:		09/10/2009 1615	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	2.5	2.5	1.0
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	2.5	2.5	1.0
C9-C10 Aromatics	ND	mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (unadjusted)	ND	mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	2.5	2.5	1.0
Total VPH	ND	mg/Kg	2.5	2.5	1.0
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	98	%		70 - 130	
2,5-Dibromotoluene (pid)	100	%		70 - 130	

samples were prepared on 09/04/2009 and analyzed on 09/15/2009.

All QC performance standards identified in the project QAPP, which may affect Data Usability for this specific method, were achieved with the exception of:

Phenol-d5 failed the surrogate recovery criteria low for 360-24444-16, LCS, LCSD. Per MCP, re-extraction is only required if two or more surrogates from any one fraction or any single surrogate falls below 10%.

3,3'-Dichlorobenzidine, 4-Nitrophenol, Aniline, Benzoic acid, Caprolactam, N-Nitrosodimethylamine and Phenol failed the recovery criteria low for LCS/LCSD 360-48620/2-A. Benzaldehyde failed the recovery criteria high in the LCS/LCSD. Also, 2,4-Dinitrophenol, 4-Nitrophenol and Dibenz(a,h)anthracene exceeded the rpd limit. Refer to the QC report for details.

General method information:
Di-n-butyl phthalate was detected in method blank MB 360-48620/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

No other difficulties were encountered during the semivolatiles analysis.

All other quality control parameters were within the acceptance limits.

POLYCHLORINATED BIPHENYLS (PCBS) (soils)
Samples 360-24444-6, 360-24444-8, 360-24444-9 and 360-24444-12 were analyzed for polychlorinated biphenyls (PCBs) in accordance with SW846 8082. The samples were prepared and analyzed on 09/04/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved.

No difficulties were encountered during the PCB 8082 analyses.

All quality control parameters were within the acceptance limits.

EXTRACTABLE PETROLEUM HYDROCARBONS (soils)
Samples 360-24444-1 and 360-24444-2 were analyzed for Extractable Petroleum Hydrocarbons in accordance with MADEP EPH. The samples were prepared on 09/10/2009 and analyzed on 09/11/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved.

General method information:
At the request of the client, only the carbon ranges are reported for this job.

Samples 360-24444-1 and 360-24444-2(10X) required dilution prior to analysis due to high target compounds. The reporting limits have been adjusted accordingly.

According to EPH method reference 11.2.6.2, using GC/MS, the laboratory has identified a single component contaminant that appears at the same retention time in all laboratory and field samples. This contaminant is derived from the method's SPE cartridge and is not included in the calculation of the C11-C22 Aromatics range.

The LCS/LCSD target and ranges recovered within MCP control criteria. While n-nonane recovered low LCSD (27%) the cumulative recovery of C9-C18 aliphatic compounds recovered within acceptable limits. In TestAmerica Westfield's experience, the n-nonane control limits should be considered advisory for this method.

No other difficulties were encountered during the EPH analyses.

All other quality control parameters were within the acceptance limits.

VOLATILE PETROLEUM HYDROCARBONS (Soils)
Samples 360-24444-1, 360-24444-2 and 360-24444-10 were analyzed for Volatile Petroleum Hydrocarbons in accordance with MADEP VPH. The samples were prepared on 09/08/2009, 09/09/2009 and 09/10/2009 and analyzed on 09/15/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved with the following exception:

Closing CCV had failing low surrogate, run is being used as client specified.

General method information:
At the request of the client, only the carbon ranges are reported for this job.

Samples 360-24444-1 and 360-24444-2(5X) required dilution prior to analysis due to non targets. The reporting limits have been

adjusted accordingly.

No other difficulties were encountered during the VPH analyses.

All other quality control parameters were within the acceptance limits.

TOTAL METALS (soils)
Samples 360-24444-1 through 360-24444-3, 360-24444-5, 360-24444-8, 360-24444-9 and 360-24444-12 were analyzed for total metals in accordance with EPA SW-846 Method 6010B. The samples were prepared and analyzed on 09/08/2009.

All QC performance standards identified in the project QAPP, which may affect Data Usability for this specific method, were achieved with the exception of:

Antimony failed the MS/MSD recovery criteria low for the matrix spike/spike duplicate of sample 360-24444-2. Aluminum and Iron failed the MS/MSD recovery criteria high. The associated laboratory control sample (LCS) recovery met acceptance criteria. Refer to the QC report for details

General method information:
Several analytes were detected in method blank MB 360-48665/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

At the request of the client, a modified MCP analyte list (TAL metals) was reported for this job.

No other difficulties were encountered during the metals analyses.

All other quality control parameters were within the acceptance limits.

TOTAL METALS (waters)
Sample 360-24444-16 was analyzed for total metals in accordance with EPA SW-846 Method 6010B. The samples were prepared and analyzed on 09/04/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved.

General method information:
At the request of the client, a modified MCP analyte list (TAL metals) was reported for this job.

No difficulties were encountered during the metals analysis.

All quality control parameters were within the acceptance limits.

TOTAL MERCURY (soils)
Samples 360-24444-1 through 360-24444-3, 360-24444-5, 360-24444-8, 360-24444-9 and 360-24444-12 were analyzed for total mercury in accordance with EPA SW-846 Method 7471A. The samples were prepared on 09/08/2009 and analyzed on 09/09/2009.

No difficulties were encountered during the mercury analyses.

All quality control parameters were within the acceptance limits.

TOTAL MERCURY (waters)
Sample 360-24444-16 was analyzed for total mercury in accordance with EPA SW-846 Method 7470A. The samples were prepared on 09/09/2009 and analyzed on 09/10/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved.

No difficulties were encountered during the mercury analysis.

All quality control parameters were within the acceptance limits.

ANIONS (soils)
Samples 360-24444-1 through 360-24444-5, 360-24444-7 through 360-24444-9, 360-24444-12 and 360-24444-13 were analyzed for anions in accordance with EPA Method 300.0. The samples were leached on 09/16/2009 and analyzed on 09/16/2009 and 09/17/2009.

No difficulties were encountered during the anions analyses.

All quality control parameters were within the acceptance limits.

ANIONS (water)

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Job Number: 360-24454-1
Sdg Number: OCRI-12

Client Sample ID: **OC-EBK-008**
Lab Sample ID: **360-24454-18**

Date Sampled: 09/08/2009 1100
Date Received: 09/08/2009 1630
Client Matrix: Water

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		09/14/2009 2025	
Prep Method: 5030B		Date Prepared:		09/14/2009 2025	
C5-C8 Aliphatics (unadjusted)	ND	ug/L	50	50	1.0
C5-C8 Aliphatics (adjusted)	ND	ug/L	50	50	1.0
C9-C10 Aromatics	ND	ug/L	50	50	1.0
C9-C12 Aliphatics (unadjusted)	ND	ug/L	50	50	1.0
C9-C12 Aliphatics (adjusted)	ND	ug/L	50	50	1.0
Total VPH	ND	ug/L	50	50	1.0
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	88	%		70 - 130	
2,5-Dibromotoluene (pid)	91	%		70 - 130	
Method: MA-EPH		Date Analyzed:		09/11/2009 1928	
Prep Method: 3510C		Date Prepared:		09/11/2009 1430	
C11-C22 Aromatics (unadjusted)	ND	ug/L	100	100	1.0
C11-C22 Aromatics (Adjusted)	ND	ug/L	100	100	1.0
C19-C36 Aliphatics	ND	ug/L	100	100	1.0
C9-C18 Aliphatics	ND	ug/L	100	100	1.0
Total EPH	ND	ug/L	100	100	1.0
Surrogate				Acceptance Limits	
o-Terphenyl	82	%		40 - 140	
2-Fluorobiphenyl	89	%		40 - 140	
2-Bromonaphthalene	82	%		40 - 140	
1-Chlorooctadecane	63	%		40 - 140	
Method: 300.0		Date Analyzed:		09/11/2009 1448	
Sulfate	ND	mg/L	2.0	2.0	1.0
Chloride	ND	mg/L	1.0	1.0	1.0
Method: 7199		Date Analyzed:		09/09/2009 0952	
Chromium (hexavalent)	ND	ug/L	1.0	1.0	1.0
Method: L107-06-1B		Date Analyzed:		09/17/2009 1555	
Prep Method: Distill/Ammonia		Date Prepared:		09/17/2009 1357	
Ammonia	ND	mg/L	0.10	0.10	1.0

the MDL and/or RL, the result has been "B" flagged.

For sample 360-24454-18EB, batch 49511. ICAL 9/25/2009 Inst B: Quadratic regression used for Benzoic acid, 1,2,4-Trichlorobenzene, 2,4-Dinitrophenol, 2-Nitroaniline and Pentachlorophenol.

No other difficulties were encountered during the semivolatiles analysis.

All other quality control parameters were within the acceptance limits.

EXTRACTABLE PETROLEUM HYDROCARBONS (water)
Sample 360-24454-18 was analyzed for Extractable Petroleum Hydrocarbons in accordance with MADEP EPH. The samples were prepared and analyzed on 09/11/09.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved.

General method information:
At the request of the client, only the carbon ranges are reported for this job.

According to EPH method reference 11.2.6.2, using GC/MS, the laboratory has identified a single component contaminant that appears at the same retention time in all laboratory and field samples. This contaminant is derived from the method's SPE cartridge and is not included in the calculation of the C11-C22 Aromatics range.

No difficulties were encountered during the EPH analysis.

All quality control parameters were within the acceptance limits.

VOLATILE PETROLEUM HYDROCARBONS (water)
Sample 360-24454-18 was analyzed for Volatile Petroleum Hydrocarbons in accordance with MADEP VPH. The samples were prepared and analyzed on 09/11/09.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved.

General method information:
At the request of the client, only the carbon ranges are reported for this job.

No difficulties were encountered during the VPH analysis.

All quality control parameters were within the acceptance limits.

POLYCHLORINATED BIPHENYLS (PCBS) (soils)
Samples 360-24454-1 and 360-24454-7 through 360-24454-9 were analyzed for polychlorinated biphenyls (PCBs) in accordance with SW846 8082. The samples were prepared and analyzed on 09/11/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved.

No difficulties were encountered during the PCB 8082 analyses.

All quality control parameters were within the acceptance limits.

POLYCHLORINATED BIPHENYLS (PCBS) (water)
Sample 360-24454-18 was analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA SW-846 Method 8082. The samples were prepared on 09/14/09 and analyzed on 09/15/09.

All QC performance standards identified in the project QAPP, which may affect Data Usability for this specific method, were achieved with the exception of:

DCB Decachlorobiphenyl failed the surrogate recovery criteria low for 360-24454-18. Sample is reported as "ND". Results are reported per client request.

No other difficulties were encountered during the PCBs analysis.

All other quality control parameters were within the acceptance limits.

TOTAL METALS (soils)
Samples 360-24454-3, 360-24454-4 and 360-24454-6 through 360-24454-9 were analyzed for total metals in accordance with EPA SW-846 Method 6010B. The samples were prepared and analyzed on 09/09/2009.

All QC performance standards identified in the project QAPP, which may affect Data Usability for this specific method, were achieved with the exception of:

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Job Number: 360-24499-1
Sdg Number: OCRI-13

Client Sample ID: OC-SB-469-36/37-XXX
Lab Sample ID: 360-24499-4

Date Sampled: 09/09/2009 1145
Date Received: 09/09/2009 1810
Client Matrix: Solid
Percent Solids: 92

Analyte	Result/Qualifier	Unit	RL		RL	Dilution
Method: MAVPH			Date Analyzed:		09/15/2009 2355	
Prep Method: 5035			Date Prepared:		09/10/2009 1615	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	2.3		2.3	1.0
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	2.3		2.3	1.0
C9-C10 Aromatics	ND	mg/Kg	2.3		2.3	1.0
C9-C12 Aliphatics (unadjusted)	ND	mg/Kg	2.3		2.3	1.0
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	2.3		2.3	1.0
Total VPH	ND	mg/Kg	2.3		2.3	1.0
Surrogate					Acceptance Limits	
2,5-Dibromotoluene (fid)	93	%			70 - 130	
2,5-Dibromotoluene (pid)	94	%			70 - 130	
Method: MA-EPH			Date Analyzed:		09/22/2009 1741	
Prep Method: 3546			Date Prepared:		09/22/2009 1445	
C11-C22 Aromatics (unadjusted)	ND	mg/Kg	3.6		3.6	1.0
C11-C22 Aromatics (Adjusted)	ND	mg/Kg	3.6		3.6	1.0
C19-C36 Aliphatics	ND	mg/Kg	3.6		3.6	1.0
C9-C18 Aliphatics	ND	mg/Kg	3.6		3.6	1.0
Total EPH	ND	mg/Kg	3.6		3.6	1.0
Surrogate					Acceptance Limits	
o-Terphenyl	77	%			40 - 140	
2-Fluorobiphenyl	98	%			40 - 140	
2-Bromonaphthalene	85	%			40 - 140	
1-Chlorooctadecane	67	%			40 - 140	
Method: Soluble-300.0			Date Analyzed:		09/22/2009 1633	
Chloride	100	mg/Kg	22		22	1.0
Method: Soluble-300.0			Date Analyzed:		09/23/2009 0914	
Sulfate	3500	mg/Kg	430		430	10
Method: L107-06-1B			Date Analyzed:		09/22/2009 0857	
Prep Method: Distill/Ammonia			Date Prepared:		09/21/2009 1134	
Ammonia	300	mg/Kg	5.8		5.8	1.0
Method: Moisture			Date Analyzed:		09/10/2009 1238	
Percent Moisture	8.0	%	1.0		1.0	1.0

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Job Number: 360-24499-1
Sdg Number: OCRI-13

Client Sample ID: OC-TBK-015
Lab Sample ID: 360-24499-8

Date Sampled: 09/09/2009 1400
Date Received: 09/09/2009 1810
Client Matrix: Solid

Analyte	Result/Qualifier	Unit	RL		RL	Dilution
Method: MAVPH			Date Analyzed:		09/15/2009 2215	
Prep Method: 5035			Date Prepared:		09/12/2009 1615	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	2.5		2.5	1.0
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	2.5		2.5	1.0
C9-C10 Aromatics	ND	mg/Kg	2.5		2.5	1.0
C9-C12 Aliphatics (unadjusted)	ND	mg/Kg	2.5		2.5	1.0
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	2.5		2.5	1.0
Total VPH	ND	mg/Kg	2.5		2.5	1.0

Surrogate			Acceptance Limits
2,5-Dibromotoluene (fid)	95	%	70 - 130
2,5-Dibromotoluene (pid)	99	%	70 - 130

24499

All quality control parameters were within the acceptance limits.

EXTRACTABLE PETROLEUM HYDROCARBONS

Sample 360-24499-4 was analyzed for Extractable Petroleum Hydrocarbons in accordance with MADEP EPH. The samples were prepared and analyzed on 09/22/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved.

General method information:
At the request of the client, only the carbon ranges are reported for this job.

According to EPH method reference 11.2.6.2, using GC/MS, the laboratory has identified a single component contaminant that appears at the same retention time in all laboratory and field samples. This contaminant is derived from the method's SPE cartridge and is not included in the calculation of the C11-C22 Aromatics range.

No difficulties were encountered during the EPH analysis.

All quality control parameters were within the acceptance limits.

VOLATILE PETROLEUM HYDROCARBONS

Samples 360-24499-4 and 360-24499-8 were analyzed for Volatile Petroleum Hydrocarbons in accordance with MADEP VPH. The samples were prepared on 09/10/2009 and 09/12/2009 and analyzed on 09/15/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved with the exception of:

For samples 360-24499(4,8), B48990, the closing CCV had failing low surrogate. Per client request, the run is reported as is.

General method information:
At the request of the client, only the carbon ranges are reported for this job.

No other difficulties were encountered during the VPH analyses.

All other quality control parameters were within the acceptance limits.

TOTAL METALS

Samples 360-24499-1, 360-24499-2, 360-24499-4 through 360-24499-7, 360-24499-14, 360-24499-16, 360-24499-17, 360-24499-19, 360-24499-20 and 360-24499-22 were analyzed for total metals in accordance with EPA SW-846 Method 6010B. The samples were prepared and analyzed on 09/14/2009.

All QC performance standards identified in the project QAPP, which may affect Data Usability for this specific method, were achieved with the exception of:

Tin exceeded the CRI method criteria with 63% recovery on the low reporting limit standard. The recommend MCP control criteria is 70-130%. The data has been flagged appropriately.

General method information:
At the request of the client, a modified MCP analyte list (TAL metals) was reported for this job.

Several analytes were detected in method blank MB 360-48897/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged. Refer to the QC report for details.

Sample 360-24499-7(5X) required dilution prior to analysis due to the presence of high concentration of the interfering element Aluminum. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the metals analyses.

All other quality control parameters were within the acceptance limits.

TOTAL MERCURY

Samples 360-24499-1, 360-24499-2, 360-24499-4 through 360-24499-7, 360-24499-14, 360-24499-16, 360-24499-17, 360-24499-19, 360-24499-20 and 360-24499-22 were analyzed for total mercury in accordance with EPA SW-846 Method 7471A. The samples were prepared and analyzed on 09/14/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved.

No difficulties were encountered during the mercury analyses.

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Job Number: 360-24563-1
Sdg Number: OCRI-14

Client Sample ID: **OC-SB-427-0.0/1.0-XXX**
Lab Sample ID: **360-24563-1**

Date Sampled: 09/10/2009 1340
Date Received: 09/11/2009 1820
Client Matrix: Solid
Percent Solids: 93

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
Client Sample ID: **OC-SB-427-0.0/1.0-XXX**			Date Sampled:	09/10/2009 1340	
Lab Sample ID: **360-24563-1**			Date Received:	09/11/2009 1820	
			Client Matrix:	Solid	
			Percent Solids:	93	
Analyte	**Result/Qualifier**	**Unit**	**RL**	**RL**	**Dilution**
Method: MAVPH			Date Analyzed:	09/16/2009 0028	
Prep Method: 5035			Date Prepared:	09/14/2009 1615	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	2.7	2.7	1.0
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	2.7	2.7	1.0
C9-C10 Aromatics	ND	mg/Kg	2.7	2.7	1.0
C9-C12 Aliphatics (unadjusted)	ND	mg/Kg	2.7	2.7	1.0
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	2.7	2.7	1.0
Total VPH	ND	mg/Kg	2.7	2.7	1.0
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	90	%		70 - 130	
2,5-Dibromotoluene (pid)	93	%		70 - 130	
Method: MA-EPH			Date Analyzed:	09/22/2009 0105	
Prep Method: 3546			Date Prepared:	09/18/2009 1231	
C11-C22 Aromatics (unadjusted)	57	mg/Kg	3.5	3.5	1.0
C11-C22 Aromatics (Adjusted)	13	mg/Kg	3.5	3.5	1.0
C19-C36 Aliphatics	21	mg/Kg	3.5	3.5	1.0
C9-C18 Aliphatics	ND	mg/Kg	3.5	3.5	1.0
Total EPH	34	mg/Kg	3.5	3.5	1.0
Surrogate				Acceptance Limits	
o-Terphenyl	82	%		40 - 140	
2-Fluorobiphenyl	90	%		40 - 140	
2-Bromonaphthalene	80	%		40 - 140	
1-Chlorooctadecane	77	%		40 - 140	
Method: Soluble-300.0			Date Analyzed:	09/21/2009 1649	
Sulfate	ND	mg/Kg	43	43	1.0
Chloride	ND	mg/Kg	22	22	1.0
Method: L107-06-1B			Date Analyzed:	09/23/2009 0917	
Prep Method: Distill/Ammonia			Date Prepared:	09/22/2009 1347	
Ammonia	51	mg/Kg	6.5	6.5	1.0
Method: Moisture			Date Analyzed:	09/15/2009 1623	
Percent Moisture	7.1	%	1.0	1.0	1.0

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Job Number: 360-24563-1
Sdg Number: OCRI-14

Client Sample ID: **OC-SB-427-12/14-XXX**
Lab Sample ID: **360-24563-2**

Date Sampled: 09/10/2009 1435
Date Received: 09/11/2009 1820
Client Matrix: Solid
Percent Solids: 90

Analyte	Result/Qualifier		Unit	RL	RL	Dilution
Method: MAVPH			Date Analyzed:		09/16/2009 0101	
Prep Method: 5035			Date Prepared:		09/14/2009 1615	
C5-C8 Aliphatics (unadjusted)	1400	J	mg/Kg	27	27	10
C5-C8 Aliphatics (adjusted)	1400		mg/Kg	27	27	10
C9-C10 Aromatics	28		mg/Kg	27	27	10
C9-C12 Aliphatics (unadjusted)	ND		mg/Kg	27	27	10
C9-C12 Aliphatics (adjusted)	ND		mg/Kg	27	27	10
Total VPH	1400		mg/Kg	27	27	10
Surrogate					Acceptance Limits	
2,5-Dibromotoluene (fid)	67	X	%		70 - 130	
2,5-Dibromotoluene (pid)	69	X	%		70 - 130	
Method: MA-EPH			Date Analyzed:		09/22/2009 1321	
Prep Method: 3546			Date Prepared:		09/18/2009 1231	
C11-C22 Aromatics (unadjusted)	7200		mg/Kg	72	72	20
C11-C22 Aromatics (Adjusted)	890		mg/Kg	72	72	20
C19-C36 Aliphatics	3200		mg/Kg	72	72	20
C9-C18 Aliphatics	520		mg/Kg	72	72	20
Total EPH	4600		mg/Kg	72	72	20
Surrogate					Acceptance Limits	
o-Terphenyl	0	D X	%		40 - 140	
2-Fluorobiphenyl	87		%		40 - 140	
2-Bromonaphthalene	82		%		40 - 140	
1-Chlorooctadecane	0	X D	%		40 - 140	
Method: Soluble-300.0			Date Analyzed:		09/21/2009 1704	
Sulfate	ND		mg/Kg	44	44	1.0
Chloride	ND		mg/Kg	22	22	1.0
Method: L107-06-1B			Date Analyzed:		09/23/2009 0918	
Prep Method: Distill/Ammonia			Date Prepared:		09/22/2009 1347	
Ammonia	ND		mg/Kg	6.1	6.1	1.0
Method: Moisture			Date Analyzed:		09/15/2009 1623	
Percent Moisture	10		%	1.0	1.0	1.0

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Job Number: 360-24563-1
Sdg Number: OCRI-14

Client Sample ID: **OC-SB-427-17/19-XXX**
Lab Sample ID: **360-24563-3**

Date Sampled: 09/10/2009 1505
Date Received: 09/11/2009 1820
Client Matrix: Solid
Percent Solids: 91

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		09/16/2009 0134	
Prep Method: 5035		Date Prepared:		09/15/2009 1615	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	3.0	3.0	1.0
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	3.0	3.0	1.0
C9-C10 Aromatics	ND	mg/Kg	3.0	3.0	1.0
C9-C12 Aliphatics (unadjusted)	ND	mg/Kg	3.0	3.0	1.0
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	3.0	3.0	1.0
Total VPH	ND	mg/Kg	3.0	3.0	1.0
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	86	%		70 - 130	
2,5-Dibromotoluene (pid)	89	%		70 - 130	
Method: MA-EPH		Date Analyzed:		09/21/2009 2235	
Prep Method: 3546		Date Prepared:		09/18/2009 1231	
C11-C22 Aromatics (unadjusted)	5.7	mg/Kg	3.6	3.6	1.0
C11-C22 Aromatics (Adjusted)	ND	mg/Kg	3.6	3.6	1.0
C19-C36 Aliphatics	4.0	mg/Kg	3.6	3.6	1.0
C9-C18 Aliphatics	ND	mg/Kg	3.6	3.6	1.0
Total EPH	4.0	mg/Kg	3.6	3.6	1.0
Surrogate				Acceptance Limits	
o-Terphenyl	76	%		40 - 140	
2-Fluorobiphenyl	96	%		40 - 140	
2-Bromonaphthalene	83	%		40 - 140	
1-Chlorooctadecane	61	%		40 - 140	
Method: Soluble-300.0		Date Analyzed:		09/21/2009 1719	
Sulfate	ND	mg/Kg	44	44	1.0
Chloride	ND	mg/Kg	22	22	1.0
Method: L107-06-1B		Date Analyzed:		09/23/2009 0919	
Prep Method: Distill/Ammonia		Date Prepared:		09/22/2009 1347	
Ammonia	7.9	mg/Kg	5.9	5.9	1.0
Method: Moisture		Date Analyzed:		09/15/2009 1623	
Percent Moisture	8.9	%	1.0	1.0	1.0

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Job Number: 360-24563-1
Sdg Number: OCRI-14

Client Sample ID: **OC-SB-427-8.0/10-DUP**
Lab Sample ID: **360-24563-4**

Date Sampled: 09/10/2009 1400
Date Received: 09/11/2009 1820
Client Matrix: Solid
Percent Solids: 96

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		09/16/2009 0207	
Prep Method: 5035		Date Prepared:		09/14/2009 1615	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	2.9	2.9	1.0
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	2.9	2.9	1.0
C9-C10 Aromatics	ND	mg/Kg	2.9	2.9	1.0
C9-C12 Aliphatics (unadjusted)	ND	mg/Kg	2.9	2.9	1.0
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	2.9	2.9	1.0
Total VPH	ND	mg/Kg	2.9	2.9	1.0
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	85	%		70 - 130	
2,5-Dibromotoluene (pid)	87	%		70 - 130	
Method: MA-EPH		Date Analyzed:		09/22/2009 0155	
Prep Method: 3546		Date Prepared:		09/18/2009 1231	
C11-C22 Aromatics (unadjusted)	240	mg/Kg	17	17	5.0
C11-C22 Aromatics (Adjusted)	ND	mg/Kg	17	17	5.0
C19-C36 Aliphatics	39 J	mg/Kg	17	17	5.0
C9-C18 Aliphatics	ND J	mg/Kg	17	17	5.0
Total EPH	39	mg/Kg	17	17	5.0
Surrogate				Acceptance Limits	
o-Terphenyl	59	%		40 - 140	
2-Fluorobiphenyl	93	%		40 - 140	
2-Bromonaphthalene	79	%		40 - 140	
1-Chlorooctadecane	49	%		40 - 140	
Method: Soluble-300.0		Date Analyzed:		09/21/2009 1734	
Sulfate	ND	mg/Kg	41	41	1.0
Chloride	ND	mg/Kg	21	21	1.0
Method: L107-06-1B		Date Analyzed:		09/23/2009 0920	
Prep Method: Distill/Ammonia		Date Prepared:		09/22/2009 1347	
Ammonia	14	mg/Kg	5.4	5.4	1.0
Method: Moisture		Date Analyzed:		09/15/2009 1623	
Percent Moisture	4.3	%	1.0	1.0	1.0

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Job Number: 360-24563-1
Sdg Number: OCRI-14

Client Sample ID: **OC-SB-427-8.0/10-XXX**
Lab Sample ID: **360-24563-5**

Date Sampled: 09/10/2009 1400
Date Received: 09/11/2009 1820
Client Matrix: Solid
Percent Solids: 96

Analyte	Result/Qualifier		Unit	RL	RL	Dilution
Method: MAVPH			Date Analyzed:		09/16/2009 0240	
Prep Method: 5035			Date Prepared:		09/14/2009 1615	
C5-C8 Aliphatics (unadjusted)	ND		mg/Kg	2.7	2.7	1.0
C5-C8 Aliphatics (adjusted)	ND		mg/Kg	2.7	2.7	1.0
C9-C10 Aromatics	ND J		mg/Kg	2.7	2.7	1.0
C9-C12 Aliphatics (unadjusted)	ND		mg/Kg	2.7	2.7	1.0
C9-C12 Aliphatics (adjusted)	ND		mg/Kg	2.7	2.7	1.0
Total VPH	ND J		mg/Kg	2.7	2.7	1.0
Surrogate					Acceptance Limits	
2,5-Dibromotoluene (fid)	70		%		70 - 130	
2,5-Dibromotoluene (pid)	61	X	%		70 - 130	
Method: MA-EPH			Date Analyzed:		09/22/2009 0220	
Prep Method: 3546			Date Prepared:		09/18/2009 1231	
C11-C22 Aromatics (unadjusted)	290		mg/Kg	17	17	5.0
C11-C22 Aromatics (Adjusted)	ND		mg/Kg	17	17	5.0
C19-C36 Aliphatics	45 J		mg/Kg	17	17	5.0
C9-C18 Aliphatics	18 J		mg/Kg	17	17	5.0
Total EPH	63 J		mg/Kg	17	17	5.0
Surrogate					Acceptance Limits	
o-Terphenyl	73		%		40 - 140	
2-Fluorobiphenyl	92		%		40 - 140	
2-Bromonaphthalene	80		%		40 - 140	
1-Chlorooctadecane	66		%		40 - 140	
Method: Soluble-300.0			Date Analyzed:		09/21/2009 1750	
Sulfate	ND		mg/Kg	41	41	1.0
Chloride	ND		mg/Kg	21	21	1.0
Method: L107-06-1B			Date Analyzed:		09/23/2009 0921	
Prep Method: DistIII/Ammonia			Date Prepared:		09/22/2009 1347	
Ammonia	8.6		mg/Kg	7.0	7.0	1.0
Method: Moisture			Date Analyzed:		09/15/2009 1623	
Percent Moisture	4.1		%	1.0	1.0	1.0

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Job Number: 360-24563-1
Sdg Number: OCRI-14

Client Sample ID: **OC-SB-428-0.0/1.0-XXX**
Lab Sample ID: **360-24563-6**

Date Sampled: 09/10/2009 1600
Date Received: 09/11/2009 1820
Client Matrix: Solid
Percent Solids: 95

Analyte	Result/Qualifier		Unit	RL	RL	Dilution
Method: MAVPH			Date Analyzed:		09/16/2009 0313	
Prep Method: 5035			Date Prepared:		09/14/2009 1615	
C5-C8 Aliphatics (unadjusted)	ND J		mg/Kg	2.3	2.3	1.0
C5-C8 Aliphatics (adjusted)	ND J		mg/Kg	2.3	2.3	1.0
C9-C10 Aromatics	ND		mg/Kg	2.3	2.3	1.0
C9-C12 Aliphatics (unadjusted)	ND J		mg/Kg	2.3	2.3	1.0
C9-C12 Aliphatics (adjusted)	ND		mg/Kg	2.3	2.3	1.0
Total VPH	ND J		mg/Kg	2.3	2.3	1.0
Surrogate					Acceptance Limits	
2,5-Dibromotoluene (fid)	69	X	%		70 - 130	
2,5-Dibromotoluene (pid)	73		%		70 - 130	
Method: MA-EPH			Date Analyzed:		09/22/2009 0335	
Prep Method: 3546			Date Prepared:		09/18/2009 1231	
C11-C22 Aromatics (unadjusted)	190		mg/Kg	34	34	10
C11-C22 Aromatics (Adjusted)	100		mg/Kg	34	34	10
C19-C36 Aliphatics	98		mg/Kg	34	34	10
C9-C18 Aliphatics	ND		mg/Kg	34	34	10
Total EPH	200		mg/Kg	34	34	10
Surrogate					Acceptance Limits	
o-Terphenyl	63		%		40 - 140	
2-Fluorobiphenyl	97		%		40 - 140	
2-Bromonaphthalene	84		%		40 - 140	
1-Chlorooctadecane	54		%		40 - 140	
Method: Soluble-300.0			Date Analyzed:		09/21/2009 1835	
Sulfate	ND		mg/Kg	42	42	1.0
Chloride	ND		mg/Kg	21	21	1.0
Method: L107-06-1B			Date Analyzed:		09/23/2009 0923	
Prep Method: Distill/Ammonia			Date Prepared:		09/22/2009 1347	
Ammonia	21		mg/Kg	7.0	7.0	1.0
Method: Moisture			Date Analyzed:		09/15/2009 1623	
Percent Moisture	5.4		%	1.0	1.0	1.0

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Job Number: 360-24563-1
Sdg Number: OCRI-14

Client Sample ID: **OC-SB-428-23/25-XXX**
Lab Sample ID: **360-24563-7**

Date Sampled: 09/10/2009 1740
Date Received: 09/11/2009 1820
Client Matrix: Solid
Percent Solids: 88

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		09/16/2009 0347	
Prep Method: 5035		Date Prepared:		09/15/2009 1615	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	2.2	2.2	1.0
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	2.2	2.2	1.0
C9-C10 Aromatics	ND	mg/Kg	2.2	2.2	1.0
C9-C12 Aliphatics (unadjusted)	ND	mg/Kg	2.2	2.2	1.0
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	2.2	2.2	1.0
Total VPH	ND	mg/Kg	2.2	2.2	1.0
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	75	%		70 - 130	
2,5-Dibromotoluene (pid)	80	%		70 - 130	
Method: MA-EPH		Date Analyzed:		09/21/2009 2300	
Prep Method: 3546		Date Prepared:		09/18/2009 1231	
C11-C22 Aromatics (unadjusted)	5.2	mg/Kg	3.7	3.7	1.0
C11-C22 Aromatics (Adjusted)	5.2	mg/Kg	3.7	3.7	1.0
C19-C36 Aliphatics	6.4	mg/Kg	3.7	3.7	1.0
C9-C18 Aliphatics	ND	mg/Kg	3.7	3.7	1.0
Total EPH	12	mg/Kg	3.7	3.7	1.0
Surrogate				Acceptance Limits	
o-Terphenyl	78	%		40 - 140	
2-Fluorobiphenyl	94	%		40 - 140	
2-Bromonaphthalene	83	%		40 - 140	
1-Chlorooctadecane	63	%		40 - 140	
Method: Soluble-300.0		Date Analyzed:		09/21/2009 1850	
Sulfate	ND	mg/Kg	45	45	1.0
Chloride	ND	mg/Kg	23	23	1.0
Method: L107-06-1B		Date Analyzed:		09/23/2009 0926	
Prep Method: Distill/Ammonia		Date Prepared:		09/22/2009 1347	
Ammonia	76	mg/Kg	6.8	6.8	1.0
Method: Moisture		Date Analyzed:		09/15/2009 1623	
Percent Moisture	12	%	1.0	1.0	1.0

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Job Number: 360-24563-1
Sdg Number: OCRI-14

Client Sample ID: **OC-SB-428-8.0/10-DUP**
Lab Sample ID: **360-24563-8**

Date Sampled: 09/10/2009 1620
Date Received: 09/11/2009 1820
Client Matrix: Solid
Percent Solids: 94

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		09/16/2009 0420	
Prep Method: 5035		Date Prepared:		09/15/2009 1615	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	26	26	10
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	26	26	10
C9-C10 Aromatics	ND	mg/Kg	26	26	10
C9-C12 Aliphatics (unadjusted)	ND	mg/Kg	26	26	10
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	26	26	10
Total VPH	ND	mg/Kg	26	26	10
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	72	%		70 - 130	
2,5-Dibromotoluene (pid)	76	%		70 - 130	
Method: MA-EPH		Date Analyzed:		09/21/2009 2325	
Prep Method: 3546		Date Prepared:		09/18/2009 1231	
C11-C22 Aromatics (unadjusted)	210	mg/Kg	3.5	3.5	1.0
C11-C22 Aromatics (Adjusted)	210	mg/Kg	3.5	3.5	1.0
C19-C36 Aliphatics	490	mg/Kg	3.5	3.5	1.0
C9-C18 Aliphatics	43	mg/Kg	3.5	3.5	1.0
Total EPH	740	mg/Kg	3.5	3.5	1.0
Surrogate				Acceptance Limits	
o-Terphenyl	60	%		40 - 140	
2-Fluorobiphenyl	98	%		40 - 140	
2-Bromonaphthalene	87	%		40 - 140	
1-Chlorooctadecane	52	%		40 - 140	
Method: Moisture		Date Analyzed:		09/15/2009 1623	
Percent Moisture	6.1	%	1.0	1.0	1.0

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Job Number: 360-24563-1
Sdg Number: OCRI-14

Client Sample ID: **OC-SB-428-8.0/10-XXX**
Lab Sample ID: **360-24563-9**

Date Sampled: 09/10/2009 1620
Date Received: 09/11/2009 1820
Client Matrix: Solid
Percent Solids: 94

Analyte	Result/Qualifier		Unit	RL	RL	Dilution
Method: MAVPH			Date Analyzed:		09/23/2009 2138	
Prep Method: 5035			Date Prepared:		09/14/2009 1621	
C5-C8 Aliphatics (unadjusted)	ND	J	mg/Kg	2.6	2.6	1.0
C5-C8 Aliphatics (adjusted)	ND	J	mg/Kg	2.6	2.6	1.0
C9-C10 Aromatics	ND	J	mg/Kg	2.6	2.6	1.0
C9-C12 Aliphatics (unadjusted)	ND	J	mg/Kg	2.6	2.6	1.0
C9-C12 Aliphatics (adjusted)	ND	J	mg/Kg	2.6	2.6	1.0
Total VPH	ND	J	mg/Kg	2.6	2.6	1.0
Surrogate					Acceptance Limits	
2,5-Dibromotoluene (fid)	55	X	%		70 - 130	
2,5-Dibromotoluene (pid)	58	X	%		70 - 130	
Method: MA-EPH			Date Analyzed:		09/21/2009 2350	
Prep Method: 3546			Date Prepared:		09/18/2009 1231	
C11-C22 Aromatics (unadjusted)	190		mg/Kg	3.5	3.5	1.0
C11-C22 Aromatics (Adjusted)	190		mg/Kg	3.5	3.5	1.0
C19-C36 Aliphatics	450		mg/Kg	3.5	3.5	1.0
C9-C18 Aliphatics	38		mg/Kg	3.5	3.5	1.0
Total EPH	680		mg/Kg	3.5	3.5	1.0
Surrogate					Acceptance Limits	
o-Terphenyl	55		%		40 - 140	
2-Fluorobiphenyl	96		%		40 - 140	
2-Bromonaphthalene	85		%		40 - 140	
1-Chlorooctadecane	46		%		40 - 140	
Method: Soluble-300.0			Date Analyzed:		09/21/2009 1905	
Sulfate	ND		mg/Kg	42	42	1.0
Chloride	ND		mg/Kg	21	21	1.0
Method: L107-06-1B			Date Analyzed:		09/23/2009 0927	
Prep Method: Distill/Ammonia			Date Prepared:		09/22/2009 1347	
Ammonia	ND		mg/Kg	6.7	6.7	1.0
Method: Moisture			Date Analyzed:		09/15/2009 1623	
Percent Moisture	6.1		%	1.0	1.0	1.0

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Job Number: 360-24563-1
Sdg Number: OCRI-14

Client Sample ID: **OC-TBK-017**
Lab Sample ID: **360-24563-10**

Date Sampled: 09/11/2009 1000
Date Received: 09/11/2009 1820
Client Matrix: Solid

Analyte	Result/Qualifier		Unit	RL	RL	Dilution
Method: MAVPH			Date Analyzed:		09/23/2009 2210	
Prep Method: 5035			Date Prepared:		09/14/2009 1621	
C5-C8 Aliphatics (unadjusted)	ND		mg/Kg	2.5	2.5	1.0
C5-C8 Aliphatics (adjusted)	ND		mg/Kg	2.5	2.5	1.0
C9-C10 Aromatics	ND		mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (unadjusted)	ND		mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (adjusted)	ND		mg/Kg	2.5	2.5	1.0
Total VPH	ND		mg/Kg	2.5	2.5	1.0
Surrogate					Acceptance Limits	
2,5-Dibromotoluene (fid)	69	X	%		70 - 130	
2,5-Dibromotoluene (pid)	76		%		70 - 130	

Bis(2-ethylhexyl) phthalate was detected in method blank MB 360-48980/1-A at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

Phenol-d5 failed the surrogate recovery criteria low for 360-24563-23, MB, LCS, LCSD. Per MCP, re-extraction is only required if two or more surrogates from any one fraction or any single surrogate falls below 10%.

4-Nitrophenol, Aniline, Benzoic acid, Caprolactam and Phenol failed the recovery criteria low for LCS 360-48980/2-A. 4-Nitrophenol, Aniline, Benzoic acid, Caprolactam and Phenol failed the recovery criteria low for LCSD 360-48980/3-A. 4-Nitrophenol exceeded the rpd limit.

General method information:
Di-n-butyl phthalate was detected in method blank MB 360-48980/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

Sample 360-24563-23(1X, 5X) required dilution prior to analysis due to a high target. The reporting limits have been adjusted accordingly.

For sample 360-24563-23, batch 49511. ICAL 9/25/2009 Inst B: Quadratic regression used for Benzoic acid, 1,2,4-Trichlorobenzene, 2,4-Dinitrophenol, 2-Nitroaniline, and Pentachlorophenol.

No other difficulties were encountered during the semivolatiles analysis.

All other quality control parameters were within the acceptance limits.

EXTRACTABLE PETROLEUM HYDROCARBONS (soils)
Samples 360-24563-1 through 360-24563-9 were analyzed for Extractable Petroleum Hydrocarbons in accordance with MADEP EPH. The samples were prepared on 09/18/2009 and analyzed on 09/21/2009 and 09/22/2009.

All QC performance standards identified in the project QAPP, which may affect Data Usability for this specific method, were achieved with the exception of:

1-Chlorooctadecane and o-Terphenyl failed the surrogate recovery criteria low for 360-24563-2 (diluted out).

C11-C22 Aromatics (unadjusted), C19-C36 Aliphatics and C9-C18 Aliphatics failed the recovery criteria low for the MS/MSD of sample 360-24563-5 in batch 360-49251. The presence of the '4' qualifier in the report indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount. The associated laboratory control sample (LCS) met acceptance criteria.

C19-C36 Aliphatics failed the recovery criteria high for the MS/MSD of sample 360-24563-9 in batch 360-49251. The associated laboratory control sample (LCS) met acceptance criteria.

General method information:
At the request of the client, only the carbon ranges are reported for this job.

According to EPH method reference 11.2.6.2, using GC/MS, the laboratory has identified a single component contaminant that appears at the same retention time in all laboratory and field samples. This contaminant is derived from the method's SPE cartridge and is not included in the calculation of the C11-C22 Aromatics range.

For samples 360-24563-(1, 3-5,5MS/MSD, 6-9,9MS/MSD), batch 49251, the LCS/LCSD target and ranges recovered within MCP control criteria. While n-nonane recovered low in the LCS (26%) and LCSD (26%), the cumulative recovery of C9-C18 aliphatic compounds recovered within acceptable limits. In TestAmerica Westfield's experience, the n-nonane control limits should be considered advisory for this method.

For sample 360-24563-2, batch 49284, the LCS/LCSD target and ranges recovered within MCP control criteria. While n-nonane recovered low in the LCS (26%) and LCSD (26%), the cumulative recovery of C9-C18 aliphatic compounds recovered within acceptable limits. In TestAmerica Westfield's experience, the n-nonane control limits should be considered advisory for this method.

Samples 360-24563-2(20X), 360-24563-4(5X), 360-24563-5(5X) and 360-24563-6(10X) required dilution prior to analysis due to high ranges and high target compounds. All extraction surrogates were diluted out (D) at dilutions above 10X. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the EPH analyses.

All other quality control parameters were within the acceptance limits.

VOLATILE PETROLEUM HYDROCARBONS (soils)
Samples 360-24563-1 through 360-24563-10 were analyzed for Volatile Petroleum Hydrocarbons in accordance with MADEP VPH. The samples were prepared on 09/14/2009 and 09/15/2009 and analyzed on 09/16/2009 and 09/23/2009.

All QC performance standards identified in the project QAPP, which may affect Data Usability for this specific method, were achieved with the exception of:

2,5-Dibromotoluene (fid) and 2,5-Dibromotoluene (pid) failed the surrogate recovery criteria low for 360-24563-2, 9, 9MS, 9MSD.

2,5-Dibromotoluene (fid) failed the surrogate recovery criteria low for 360-24563-6,10.

2,5-Dibromotoluene (pid) failed the surrogate recovery criteria low for 360-24563-5.

For samples 360-24653(9, (MS/MSD,10) B49380, the closing CCV had failing low surrogate.

For samples 360-24563(1-8), B48990 the closing CCV had failing low surrogate, run is being reported as client specified.

Per client request, the data is being reported as specified.

C9-C10 Aromatics failed the recovery criteria high for the MS/MSD of sample 360-24563-9 in batch 360-49380 and 360-49358. The associated laboratory control sample (LCS) recovery met acceptance criteria.

General method information:
At the request of the client, only the carbon ranges are reported for this job.

Samples 360-24563-2(10X) and 360-24563-8(10X) required dilution prior to analysis due to non targets. The reporting limits have been adjusted accordingly.

Sample 360-24563-7 had a ratio of methanol to soil above the method standard.

Sample 360-24563-9MS had a ratio of methanol to soil below the method standard.

No other difficulties were encountered during the VPH analyses.

All other quality control parameters were within the acceptance limits.

TOTAL METALS (soils)
Samples 360-24563-1, 360-24563-2, 360-24563-4 through 360-24563-6, 360-24563-9 and 360-24563-11 through 360-24563-16 were analyzed for total metals in accordance with EPA SW-846 Method 6010B. The samples were prepared and analyzed on 09/15/2009.

All QC performance standards identified in the project QAPP, which may affect Data Usability for this specific method, were achieved with the exception of:

Antimony failed the recovery criteria low for the MS of sample 360-24563-5 in batch 360-49648. Aluminum and Iron failed the recovery criteria high. The associated laboratory control sample (LCS) met acceptance criteria.

Antimony, Chromium, Iron and Potassium failed the recovery criteria low for the MS of sample 360-24563-14 in batch 360-48984. The associated laboratory control sample (LCS) met acceptance criteria.

Beryllium exceeded the rpd limit for the duplicate of sample 360-24563-5.

Tin exceeded the CRI method criteria with 64% recovery on the low reporting limit standard. The recommend MCP control criteria is 70-130%. The data has been flagged appropriately.

General method information:
At the request of the client, a modified MCP analyte list (TAL metals) was reported for this job.

Several analytes were detected in method blank MB 360-48949/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged. Refer to the QC report for details.

No other difficulties were encountered during the metals analyses.

All other quality control parameters were within the acceptance limits.

TOTAL METALS (water)
Sample 360-24563-23 was analyzed for total metals in accordance with EPA SW-846 Method 6010B. The samples were prepared and analyzed on 09/14/2009.

All QC performance standards identified in the project QAPP, which may affect Data Usability for this specific method, were achieved with the exception of:

Client: Olin Corporation

Job Number: 360-24563-1
Sdg Number: OCRI-14

Surrogate Recovery Report

MAVPH Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	25DBT2 %Rec	25DBT1 %Rec
360-24563-1	OC-SB-427-0.0/1.0-XXX	90	93
360-24563-2	OC-SB-427-12/14-XXX	67X	69X
360-24563-3	OC-SB-427-17/19-XXX	86	89
360-24563-4	OC-SB-427-8.0/10-DUP	85	87
360-24563-5	OC-SB-427-8.0/10-XXX	70	61X
360-24563-6	OC-SB-428-0.0/1.0-XXX	69X	73
360-24563-7	OC-SB-428-23/25-XXX	75	80
360-24563-8	OC-SB-428-8.0/10-DUP	72	76
360-24563-9	OC-SB-428-8.0/10-XXX	55X	58X
360-24563-10	OC-TBK-017	69X	76
MB 360-48989/3-A		95	97
MB 360-49377/3-A		77	83
LCS 360-48989/1-A		95	84
LCS 360-49377/1-A		90	80
LCSD 360-48989/2-A		97	84
LCSD 360-49377/2-A		88	77
360-24563-5 MS	OC-SB-427-8.0/10-XXX MS	93	79
360-24563-9 MS	OC-SB-428-8.0/10-XXX MS	62X	56X
360-24563-5 MSD	OC-SB-427-8.0/10-XXX MSD	89	76
360-24563-9 MSD	OC-SB-428-8.0/10-XXX MSD	61X	55X

Surrogate	Acceptance Limits
25DBT = 2,5-Dibromotoluene (fid)	70-130
25DBT = 2,5-Dibromotoluene (pid)	70-130

Client: Olin Corporation

Job Number: 360-24563-1
Sdg Number: OCRI-14

Surrogate Recovery Report

MA-EPH Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	OTPH1 %Rec	FBP1 %Rec	2BN1 %Rec	1COD2 %Rec
360-24563-1	OC-SB-427-0.0/1.0-XXX	82	90	80	77
360-24563-2	OC-SB-427-12/14-XXX	0D X	87	82	0X D
360-24563-3	OC-SB-427-17/19-XXX	76	96	83	61
360-24563-4	OC-SB-427-8.0/10-DUP	59	93	79	49
360-24563-5	OC-SB-427-8.0/10-XXX	73	92	80	66
360-24563-6	OC-SB-428-0.0/1.0-XXX	63	97	84	54
360-24563-7	OC-SB-428-23/25-XXX	78	94	83	63
360-24563-8	OC-SB-428-8.0/10-DUP	60	98	87	52
360-24563-9	OC-SB-428-8.0/10-XXX	55	96	85	46
MB 360-49163/1-A		74	94	81	61
LCS 360-49163/2-A		76	94	81	63
LCSD 360-49163/3-A		74	93	81	66
360-24563-5 MS	OC-SB-427-8.0/10-XX X MS	65	96	84	57
360-24563-9 MS	OC-SB-428-8.0/10-XX X MS	58	93	83	49
360-24563-5 MSD	OC-SB-427-8.0/10-XX X MSD	74	96	83	60
360-24563-9 MSD	OC-SB-428-8.0/10-XX X MSD	59	90	81	52

Dil out ok?

Surrogate	Acceptance Limits
OTPH = o-Terphenyl	40-140
FBP = 2-Fluorobiphenyl	40-140
2BN = 2-Bromonaphthalene	40-140
1COD = 1-Chlorooctadecane	40-140

Client: Olin Corporation

Job Number: 360-24563-1
Sdg Number: OCRI-14

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 360-49377

Method: MAVPH
Preparation: 5035

MS Lab Sample ID:	360-24563-9	Analysis Batch: 360-49380	Instrument ID: HP 5890II GC w/ PID/FID
Client Matrix:	Solid	Prep Batch: 360-49377	Lab File ID: G17758.D
Dilution:	1.0		Initial Weight/Volume: 7.20 g
Date Analyzed:	09/23/2009 1925		Final Weight/Volume: 10 g
Date Prepared:	09/23/2009 1621		Injection Volume:
			Column ID: PRIMARY
MSD Lab Sample ID:	360-24563-9	Analysis Batch: 360-49380	Instrument ID: HP 5890II GC w/ PID/FID
Client Matrix:	Solid	Prep Batch: 360-49377	Lab File ID: G17759.D
Dilution:	1.0		Initial Weight/Volume: 11.04 g
Date Analyzed:	09/23/2009 1959		Final Weight/Volume: 10 g
Date Prepared:	09/23/2009 1621		Injection Volume:
			Column ID: PRIMARY

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
C5-C8 Aliphatics (unadjusted)	95	97	70 - 130	40	50		
C9-C10 Aromatics	158	157	70 - 130	43	50	F	F
C9-C12 Aliphatics (unadjusted)	109	110	70 - 130	41	50		

Surrogate	MS % Rec		MSD % Rec		Acceptance Limits
2,5-Dibromotoluene (fid)	62	X	61	X	70 - 130
2,5-Dibromotoluene (pid)	56	X	55	X	70 - 130

OK
All ND
No Quals

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: Olin Corporation

Job Number: 360-24563-1
Sdg Number: OCRI-14

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 360-49163

Method: MA-EPH
Preparation: 3546

MS Lab Sample ID:	360-24563-9	Analysis Batch: 360-49251	Instrument ID: HP 6890 GC w/ dual FIDs
Client Matrix:	Solid	Prep Batch: 360-49163	Lab File ID: R25720.D
Dilution:	1.0		Initial Weight/Volume: 30.09 g
Date Analyzed:	09/22/2009 0015		Final Weight/Volume: 2.0 mL
Date Prepared:	09/18/2009 1231		Injection Volume: 1 uL
			Column ID: PRIMARY
MSD Lab Sample ID:	360-24563-9	Analysis Batch: 360-49251	Instrument ID: HP 6890 GC w/ dual FIDs
Client Matrix:	Solid	Prep Batch: 360-49163	Lab File ID: R25722.D
Dilution:	1.0		Initial Weight/Volume: 30.43 g
Date Analyzed:	09/22/2009 0040		Final Weight/Volume: 2.0 mL
Date Prepared:	09/18/2009 1231		Injection Volume: 1 uL
			Column ID: PRIMARY

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
C11-C22 Aromatics (unadjusted)	91	97	40 - 140	1	50		
C19-C36 Aliphatics	271	288	40 - 140	1	50	4	4
C9-C18 Aliphatics	64	62	40 - 140	1	50		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
o-Terphenyl	58	59	40 - 140
2-Fluorobiphenyl	93	90	40 - 140
2-Bromonaphthalene	83	81	40 - 140
1-Chlorooctadecane	49	52	40 - 140

ok 74X SPIKE conc

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Olin Corporation

Job Number: 360-24563-1
Sdg Number: OCRI-14

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 360-49163

Method: MA-EPH
Preparation: 3546

MS Lab Sample ID:	360-24563-5	Analysis Batch: 360-49251	Instrument ID: HP 6890 GC w/ dual FIDs
Client Matrix:	Solid	Prep Batch: 360-49163	Lab File ID: R25732.D
Dilution:	5.0		Initial Weight/Volume: 30.85 g
Date Analyzed:	09/22/2009 0245		Final Weight/Volume: 2.0 mL
Date Prepared:	09/18/2009 1231		Injection Volume: 1 uL
			Column ID: PRIMARY

MSD Lab Sample ID:	360-24563-5	Analysis Batch: 360-49251	Instrument ID: HP 6890 GC w/ dual FIDs
Client Matrix:	Solid	Prep Batch: 360-49163	Lab File ID: R25734.D
Dilution:	5.0		Initial Weight/Volume: 30.13 g
Date Analyzed:	09/22/2009 0310		Final Weight/Volume: 2.0 mL
Date Prepared:	09/18/2009 1231		Injection Volume: 1 uL
			Column ID: PRIMARY

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
C11-C22 Aromatics (unadjusted)	31	27	40 - 140	11	50	4	4 74Y [illegible]
C19-C36 Aliphatics	20	30	40 - 140	6	50	F	F
C9-C18 Aliphatics	25	33	40 - 140	7	50	F	F

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
o-Terphenyl	65	74	40 - 140
2-Fluorobiphenyl	96	96	40 - 140
2-Bromonaphthalene	84	83	40 - 140
1-Chlorooctadecane	57	60	40 - 140

Calculations are performed before rounding to avoid round-off errors in calculated results.

Mr. Steven Morrow
Olin Corporation
3855 North Ocoee Street
Suite 200
Cleveland, TN 37312-4441

Job Number: 360-24686-1
Sdg Number: OCRI-18

Client Sample ID: OC-SB-400-17/19-XXX
Lab Sample ID: 360-24686-1

Date Sampled: 09/18/2009 1100
Date Received: 09/18/2009 1700
Client Matrix: Solid
Percent Solids: 89

Analyte	Result/Qualifier	Unit	RL	RL	Dilution
Method: MAVPH		Date Analyzed:		09/23/2009 2243	
Prep Method: 5035		Date Prepared:		09/23/2009 1621	
C5-C8 Aliphatics (unadjusted)	ND	mg/Kg	2.5	2.5	1.0
C5-C8 Aliphatics (adjusted)	ND	mg/Kg	2.5	2.5	1.0
C9-C10 Aromatics	ND	mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (unadjusted)	ND	mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (adjusted)	ND	mg/Kg	2.5	2.5	1.0
Total VPH	ND	mg/Kg	2.5	2.5	1.0
Surrogate				Acceptance Limits	
2,5-Dibromotoluene (fid)	72	%		70 - 130	
2,5-Dibromotoluene (pid)	79	%		70 - 130	
Method: MA-EPH		Date Analyzed:		09/22/2009 1806	
Prep Method: 3546		Date Prepared:		09/22/2009 1445	
C11-C22 Aromatics (unadjusted)	ND	mg/Kg	3.7	3.7	1.0
C11-C22 Aromatics (Adjusted)	ND	mg/Kg	3.7	3.7	1.0
C19-C36 Aliphatics	ND	mg/Kg	3.7	3.7	1.0
C9-C18 Allphatics	ND	mg/Kg	3.7	3.7	1.0
Total EPH	ND	mg/Kg	3.7	3.7	1.0
Surrogate				Acceptance Limits	
o-Terphenyl	84	%		40 - 140	
2-Fluorobiphenyl	100	%		40 - 140	
2-Bromonaphthalene	90	%		40 - 140	
1-Chlorooctadecane	64	%		40 - 140	
Method: Soluble-300.0		Date Analyzed:		09/30/2009 0145	
Sulfate	ND	mg/Kg	36	36	1.0
Chloride	ND	mg/Kg	18	18	1.0
Method: L107-06-1B		Date Analyzed:		09/30/2009 1508	
Prep Method: Distill/Ammonia		Date Prepared:		09/30/2009 1338	
Ammonia	ND	mg/Kg	7.4	7.4	1.0
Method: Moisture		Date Analyzed:		09/21/2009 1408	
Percent Moisture	11	%	1.0	1.0	1.0

Mr. Steven Morrow
Olin Corporation
3855 North Ocoee Street
Suite 200
Cleveland, TN 37312-4441

Job Number: 360-24686-1
Sdg Number: OCRI-18

Client Sample ID: **OC-TBK-022**
Lab Sample ID: **360-24686-12**

Date Sampled: 09/18/2009 1245
Date Received: 09/18/2009 1700
Client Matrix: Solid

Analyte	Result/Qualifier		Unit	RL	RL	Dilution
Method: MAVPH			Date Analyzed:		09/23/2009 2316	
Prep Method: 5035			Date Prepared:		09/21/2009 1621	
C5-C8 Aliphatics (unadjusted)	ND		mg/Kg	2.5	2.5	1.0
C5-C8 Aliphatics (adjusted)	ND		mg/Kg	2.5	2.5	1.0
C9-C10 Aromatics	ND		mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (unadjusted)	ND		mg/Kg	2.5	2.5	1.0
C9-C12 Aliphatics (adjusted)	ND		mg/Kg	2.5	2.5	1.0
Total VPH	ND		mg/Kg	2.5	2.5	1.0

Surrogate				Acceptance Limits
2,5-Dibromotoluene (fid)	68	X	%	70 - 130
2,5-Dibromotoluene (pid)	77		%	70 - 130

All QC performance standards identified in the project QAPP, which may affect Data Usability for this specific method, were achieved with the exception of:

Phenol-d5 failed the surrogate recovery criteria low for 360-24686-20 and MB 360-49233/1-A . Per MCP, re-extraction is only required if two or more surrogates from any one fraction or any single surrogate falls below 10%.

4-Nitrophenol, Aniline, Benzoic acid, Caprolactam, N-Nitrosodimethylamine and Phenol failed the recovery criteria low for LCS/LCSD 360-49233/2-A. Benzaldehyde failed the recovery criteria high. Also, Benzoic acid exceeded the rpd limit.

General method information:
Acetophenone and Di-n-butyl phthalate were detected in method blank MB 360-49233/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

No other difficulties were encountered during the semivolatiles analysis.

All other quality control parameters were within the acceptance limits.

EXTRACTABLE PETROLEUM HYDROCARBONS (soil)
Sample 360-24686-1 was analyzed for Extractable Petroleum Hydrocarbons in accordance with MADEP EPH. The samples were prepared and analyzed on 09/22/2009.

All QC performance standards and recommendations, which may affect Data Usability for this specific method, were achieved.

General method information:
At the request of the client, only the carbon ranges are reported for this job.

According to EPH method reference 11.2.6.2, using GC/MS, the laboratory has identified a single component contaminant that appears at the same retention time in all laboratory and field samples. This contaminant is derived from the method's SPE cartridge and is not included in the calculation of the C11-C22 Aromatics range.

No difficulties were encountered during the EPH analysis.

All quality control parameters were within the acceptance limits.

VOLATILE PETROLEUM HYDROCARBONS (soils)
Samples 360-24686-1 and 360-24686-12 were analyzed for Volatile Petroleum Hydrocarbons in accordance with MADEP VPH. The samples were prepared on 09/21/2009 and 09/23/2009 and analyzed on 09/23/2009.

All QC performance standards identified in the project QAPP, which may affect Data Usability for this specific method, were achieved with the exception of:

2,5-Dibromotoluene (fid) failed the surrogate recovery criteria low for 360-24686-12.

Furthermore the closing CCV had failing low surrogate. The data is being reported after consultation with the client.

General method information:
At the request of the client, only the carbon ranges are reported for this job.

No other difficulties were encountered during the VPH analyses.

All other quality control parameters were within the acceptance limits.

TOTAL METALS (soils)
Samples 360-24686-1 through 360-24686-11 and 360-24686-13 through 360-24686-16 were analyzed for total metals in accordance with EPA SW-846 Method 6010B. The samples were prepared and analyzed on 09/29/2009.

All QC performance standards identified in the project QAPP, which may affect Data Usability for this specific method, were achieved with the exception of:

Aluminum, Antimony and Iron failed the recovery criteria low for the MS of sample 360-24686-1 in batch 360-49955. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Tin exceeded the CRI method criteria with 62% recovery on the low reporting limit standard. The recommend MCP control criteria is 70-130%. The data has been flagged appropriately.

General method information:
At the request of the client, a modified MCP analyte list (TAL metals) was reported for this job.

Client: Olin Corporation

Job Number: 360-24686-1
Sdg Number: OCRI-18

Surrogate Recovery Report

MAVPH Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	25DBT2 %Rec	25DBT1 %Rec
360-24686-1	OC-SB-400-17/19-XXX	72	79
360-24686-12	OC-TBK-022	68X	77
MB 360-49377/3-A		77	83
LCS 360-49377/1-A		90	80
LCSD 360-49377/2-A		88	77

TB

Surrogate	Acceptance Limits
25DBT = 2,5-Dibromotoluene (fid)	70-130
25DBT = 2,5-Dibromotoluene (pid)	70-130